FINAL AGENDA

Register by December 14 & SAVE up to $550!

2019 Conference Tracks

1. Data & Storage Management
2. Data Computing
3. Software Applications & Services
4. Bioinformatics
5. Next-Gen Sequencing Informatics
6. FAIR Data
7. Clinical Research & Translational Informatics
8. Data Visualization & Exploration Tools
9. Blockchain in Pharma, R&D, and Healthcare
10. Pharmaceutical R&D Informatics
11. Cancer Informatics
12. Cloud Computing
13. Data Transfer
14. Edge
15. AI for Pharma & Biotech
16. AI for Genomics
17. AI for Healthcare

18th Annual Bio-IT World CONFERENCE & EXPO '19

Building a global network for precision medicine by uniting the Bio-IT community

April 16-18, 2019 • Seaport World Trade Center • Boston, MA

3,400+ Industry Professionals from 40+ Countries

160+ Industry-Leading Sponsors and Exhibitors

280+ Technology and Scientific Presentations

17 Diverse Conference Tracks

2019 PLENARY KEYNOTE SPEAKERS

John Wilbanks
Chief Commons Officer, Sage Bionetworks

Mariana Nacht, PhD
CSO, Vivid Biosciences ; President, Board of Directors, WEST (Women in the Enterprise of Science and Technology)

Anne E. Carpenter, PhD
Senior Director of the Imaging Platform, Institute Scientist, Broad Institute of Harvard and MIT

Susie Stephens, PhD
Senior Director, Oncology & Vaccine R&D Information Technology, Pfizer

Iya Khalil, PhD
Chief Commercial Officer and Co-Founder, GNS Healthcare

Vijay K. Bulusu
Head, Data & Digital Innovation, Pfizer

Bio-ITWorldExpo.com #BioIT19

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18th Annual Bio-IT World CONFERENCE & EXPO '19

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18th Annual Bio-IT World CONFERENCE & EXPO '19

Welcome

The Bio-IT space right now is rife with hype. Blockchain, AI, machine learning, data science, deep learning, edge, IoT, and more are being touted as panaceas, sure to at least facilitate a cure for what ails you. There are some legitimately cool technologies maturing in our space, but there is also plenty of smoke and mirrors designed to conceal the tech growing pains. At Bio-IT World we strive to clear the air with in-depth technical presentations in 17 tracks, education opportunities at 14 workshops, three expert-judged awards programs, and countless face-to-face conversations with the people you want to meet. When 3,400+ attendees from 40+ countries come together at the 2019 Bio-IT World Conference & Expo, it won't be a conversation you can afford to miss.

Thank you for being part of our community.

Allison Proffitt
Editorial Director, Bio-IT World

Cindy Crowninshield
Executive Event Director
Bio-IT World Conference & Expo

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18th Annual Bio·IT World CONFERENCE & EXPO '19

SCHEDULE-AT-A-GLANCE

#BioIT19

MONDAY, APRIL 15, 2019

Registration Hours:

8:00 - 5:00 Registration Open

Schedule:

9:00 - 5:00 Bio-IT FAIR Data Hackathon

TUESDAY, APRIL 16, 2019

Registration Hours:

7:00 - 6:30 Registration Open

Schedule:

7:00 - 8:15 Morning Coffee
8:00 - 3:30 Bio-IT FAIR Data Hackathon
8:00 - 7:00 1-on-1 Networking Open
8:00 - 11:30 Morning Workshops
12:30 - 4:00 Afternoon Workshops
4:00 - 5:00 Plenary Keynote Session
5:00 - 7:00 Welcome Reception in the Exhibit Hall with Poster Viewing

WEDNESDAY, APRIL 17, 2019

Registration Hours:

7:30 - 6:00 Registration Open

Schedule:

7:00 - 8:15 Morning Coffee
7:30 - 6:30 1-on-1 Networking Open
8:00 - 9:45 Plenary Keynote Session
9:45 - 10:50 Coffee Break in the Exhibit Hall and Poster Viewing
10:50 - 12:30 Tracks
12:30 - 12:40 Session Break
12:40 - 1:40 Luncheon Presentation or Enjoy Lunch on your Own
1:40 - 1:50 Session Break
1:50 - 3:25 Tracks
3:25 - 4:00 Refreshment Break in the Exhibit Hall with Poster Viewing
4:00 - 5:30 Tracks
5:30 - 6:30 Best of Show Awards Reception in the Exhibit Hall with Poster Viewing
7:00 - 10:00 Bio-IT World After Hours @Boston Children's Museum

THURSDAY, APRIL 18, 2019

Registration Hours:

7:30 - 2:00 Registration Open

Schedule:

7:30 - 8:15 Morning Coffee
7:45 - 1:45 1-on-1 Networking Open
8:00 - 9:45 Benjamin Franklin Award Program, Innovative Practices Awards Program, and Plenary Keynote Session
9:45 - 10:30 Coffee Break in the Exhibit Hall and Poster Competition Winners Announced @ 10:00
10:30 - 12:10 Tracks
12:10 - 12:20 Session Break
12:20 - 1:20 Luncheon Presentation or Enjoy Lunch on your Own
1:20 - 1:55 Dessert Refreshment Break in the Exhibit Hall with Poster Viewing
1:55 - 4:00 Tracks
4:00 Conference Adjourns

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CAMBRIDGE HEALTHTECH INSTITUTE AND BIO-IT WORLD

2019 **AWARDS** PROGRAMS

RECOGNIZING AND CELEBRATING LEADERS IN INNOVATION

Cambridge Healthtech Institute and Bio-IT World will again be recognizing and celebrating leaders in innovation through the following Awards Programs:

Bio-IT World Innovative Practices Awards

Bio-IT World has held a best practices award since 2003, highlighting outstanding examples of technology innovation in the life sciences. This year, we continue the tradition under a new name: Bio-IT World Innovative Practices Awards. The Innovative Practices Awards are designed to recognize partnerships and projects pushing our industry forward, striving to highlight strategies that can be widely shared and implemented across the industry to improve the quality, pace, and reach of our science. Winners will be announced during the plenary session at Bio-IT World Conference & Expo on Thursday, April 18. The advanced deadline (no fee) for entry is November 30, 2018 and the final deadline (fee) for entry is February 1, 2019. To view previous winners and submit a nomination, visit **www.bio-itworld.com/innovativepractices**

Bio-IT World Best of Show Awards

The 2019 Best of Show Awards offer exhibitors of the Bio-IT World Conference and Expo an exclusive opportunity to distinguish and highlight their products ranging from an innovative application, technology, tool, or solution from the competition. Judged by a team of leading industry experts, and Bio-IT World editors, this program identifies exceptional innovation in technologies used by life science professionals today. Products considered are new products, or significant product upgrades, introduced between April 2018 and April 2019. Winners are judged based on the products' technical merit, functionality, innovation, and in-person presentations to the judges at the show. Please Note: Selection is NOT based upon level of sponsorship or exhibit participation.

To enter your product, fill out the online submission form. Access the form by visiting:
Bio-ITWorld.com/bioit_bestofshow_form.aspx

Benjamin Franklin Award

The Benjamin Franklin Award for Open Access in the Life Sciences is a humanitarian/bioethics award presented annually by the Bioinformatics Organization to an individual who has, in his or her practice, promoted free and open access to the materials and methods used in the life sciences. Nominations are now being accepted! The winner will be announced during the plenary session at Bio-IT World Conference & Expo on Thursday, April 18. Full details including previous laureates and entry forms are available at **www.bioinformatics.org/franklin**

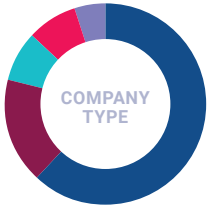
SPONSORSHIP & EXHIBIT OPPORTUNITIES

VIEW CURRENT EXHIBITOR LIST & FLOOR PLAN

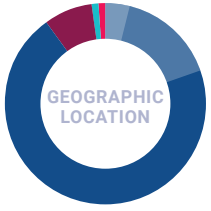
REGISTER AS AN EXHIBITOR

Comprehensive sponsorship packages allow you to achieve your objectives before, during, and long after the event. Signing on earlier will allow you to maximize exposure to hard-to-reach decision-makers.

2018 Attendee Demographics



- Biotech & Pharma.....62%
- Services.....17%
- Academic & Government.....8%
- Healthcare.....8%
- Other (Financial, Press, Services).....5%



- United States.....90%
  East Coast 78% | West Coast 16% | Midwest 6%
- Europe.....8%
- Asia.....1%
- Rest of World.....1%

- Executive & Director.....39%
- Scientist/Technologist.....28%
- Sales & Marketing.....17%
- Manager.....12%
- Professor.....2%
- Assistant.....2%

PODIUM PRESENTATIONS - Available Within the Main Agenda!

Showcase your solutions to a guaranteed, targeted audience through a 15- or 30-minute presentation during a specific conference program, breakfast, lunch, or separate from the main agenda within a pre-conference workshop. Package includes exhibit space, on-site branding, and access to cooperative marketing efforts by CHI. For the luncheon option, lunches are delivered to attendees who are already seated in the main session room. Presentations will sell out quickly, so sign on early to secure your talk!

ONE-ON-ONE MEETINGS

Select your top prospects from the pre-conference registration list. CHI will reach out to your prospects and arrange the meeting for you. A minimum number of meetings will be guaranteed, depending on your marketing objectives and needs. A very limited number of these packages will be sold.

INVITATION-ONLY VIP DINNER / HOSPITALITY SUITE

Sponsors will select their top prospects from the conference pre-registration list for an evening of networking at the hotel or at a choice local venue. CHI will extend invitations and deliver prospects, helping you to make the most out of this invaluable opportunity. Evening will be customized according to sponsor's objectives. (i.e.: Purely social, Focus group, Reception style, Plated dinner with specific conversation focus)

FOR ADDITIONAL INFORMATION ON SPONSORSHIP, PLEASE CONTACT:

Companies A-K

Katelin Fitzgerald
Sr Manager,
Business Development
781-972-5458
kfitzgerald@healthtech.com

Companies L-Z

Patty Rose
Sr Manager,
Business Development
781-972-1349
prose@healthtech.com

EXHIBIT

Exhibitors will enjoy facilitated networking opportunities with 3,400+ qualified delegates, making it the perfect platform to launch a new product, collect feedback, and generate new leads. Exhibit space sells out quickly, so reserve yours today.

ADDITIONAL BRANDING & PROMOTIONAL OPPORTUNITIES INCLUDE:

- Hotel Room Keys **SOLD!**
- Footprint Trails
- Staircase Ads
- Conference Tote Bags **SOLD!**
- Badge Lanyards **SOLD!**
- Booth Crawl
- Conference or Track Notebooks
- Cell Phone Charging Station
- Golf Simulator
- Re-Charge Lounges
- Program Materials Advertisement
- Bio-IT World After Hours Reception
- Massage Lounge

NEW OPPORTUNITY FOR START-UPS

Is your company less than two years young and seeking an opportunity for exposure to investors and the venture capital investment community? Please contact us for more details on Bio-IT World's Start-Up Showcase.

LOOKING FOR ADDITIONAL WAYS TO DRIVE LEADS TO YOUR SALES TEAM?

Bio-IT World's Lead Generation Programs will help you obtain more targeted, quality leads throughout the year. We will mine our database of 800,000+ life science professionals to your specific needs. We guarantee a minimum of 100 leads per program! Opportunities include:

- Webinars
- White Papers
- Market Surveys
- Podcasts and More!

Networking AT BIO-IT WORLD

1-on-1 Networking

Bio-IT World's 1-on-1 networking service allows you to quickly find and connect with attendees who have similar interests and goals.

- Search comprehensive profiles of Bio-IT World participants
- Set up meetings and expand your network
- Access to 1-on-1 networking will be available one month prior to the event for conference session attendees only.

Bio-IT World Networking Receptions

Beyond the sessions, Bio-IT World celebrates industry achievements and collaboration by bringing the community together for after-hours networking and entertainment.

WELCOME RECEPTION

TUESDAY, APRIL 16 | 5:00 - 7:00 PM

BEST OF SHOW AWARDS CELEBRATION

WEDNESDAY, APRIL 17 | 5:30 - 6:30 PM

WEDNESDAY, APRIL 17 | 7:00 – 10:00 PM

Bio-IT World After Hours @ THE

BOSTON CHILDREN'S MUSEUM

Bio-IT World 2019 is pleased to present the 2nd Annual After-Hours @ the Boston Children's Museum. Join us for a lively, fun filled evening at the museum featuring live entertainment and dancing, interactive exhibits to explore, delicious refreshments and plenty of networking with fellow attendees.

Sponsored by

MARKLEY

Learn more by visiting Bio-ITWorldExpo.com/Networking

18th Annual Bio·IT World CONFERENCE & EXPO '19

2019 PRE-CONFERENCE WORKSHOPS

Cambridge Healthtech Institute is pleased to offer morning and afternoon pre-conference workshops on Tuesday, April 16, 2019. The workshops are designed to be instructional, interactive and provide in-depth information on a specific topic. They allow for one-on-one interaction and provide a great way to explain more technical aspects that would otherwise not be covered during the main conference tracks that take place Wednesday-Thursday.

MORNING WORKSHOPS

TUESDAY, APRIL 16 | 8:00 - 11:30 AM

W1. Data Management for Biologics: Registration and Beyond
Monica Wang, PhD, Principal Bioinformatics Architect, Project and Program Manager, Global Research IT, Takeda
Additional Instructors to be Announced

W2. Data Visualization to Accelerate Biological Discovery
Nils Gehlenborg, PhD, Assistant Professor, Department of Biomedical Informatics, Harvard Medical School

W3. Lab Informatics: An Insider's Guide to Project Success
Randy Hice, Managing Director, Astrix Group

W4. AI for Pharma
Bino John, PhD, Associate Director, AstraZeneca
John Van Hemert, PhD, Research Scientist, Bioinformatics, Corteva Agri Science, A Dow-Dupont Division
Additional Instructors to be Announced

W5. Managing Sensitive and HIPAA-Controlled Data with Globus
Vas Vasiliadis, Chief Customer Officer, Globus, University of Chicago
Rachana Ananthakrishnan, Head of Products, Globus, University of Chicago

W6. DNA Sequencing 101
John Methot, Director, Health Informatics Architecture, Dana-Farber Cancer Institute

W7. Blockchain 101
Mark Treshock, Global Blockchain Solutions Leader, Healthcare and Life Sciences, IBM
Additional Instructors to be Announced

AFTERNOON WORKSHOPS

TUESDAY, APRIL 16 | 12:30 - 4:00 PM

W9. Research Project Management
Gregg TeHennepe, Program Manager, Computational Scientist, The Jackson Laboratory
Beena Kadakkuzha, PhD, Research Project Manager, The Jackson Laboratory

W10. Digital Biomarkers in Pharma R&D: Technical Challenges and Strategies for Advancing Personalized Medicine
Eli Goldberg, Data Scientist, Innovative Digital Endpoint Analytics (IDEA), Novartis Institutes for Biomedical Research
Amir Lahav, ScD, Rare Disease Research Unit, Pfizer
Additional Instructors to be Announced

W11. Digital Data Strategy for the Lab
Dave Dorsett, Principal Software Architect, Astrix Technology Group

W12. Data Science Driving Better Informed Decisions
Ahmed Abdeen Hamed, PhD, Scientific Knowledge Engineer, Scientific Information Management: Data Platform, Merck & Co.
Kelly Zou, PhD, Senior Director, Real World Data Methods & Algorithms Group Lead, Global Real World Evidence (GRWE) Center of Excellence (COE), Patient & Health Impact (PHI), Pfizer, Inc.
Meeta Pradhan, PhD, Senior Data Scientist, Indiana Biosciences Research Institute
Additional Instructors to be Announced

W13. Controversies and Equivocalities in Protein Informatics
David Fenyő, PhD, Professor, Biochemistry and Molecular Pharmacology, Institute for Systems Genetics, New York University School of Medicine
Christopher Southan, PhD, Principal Consultant, TW2Informatics

W14. The Gene Pattern Notebook Environment for Open Science and Reproducible Bioinformatics Research
Michael Reich, Assistant Director, Bioinformatics, Department of Medicine, University of California San Diego
Barbara Hill, Senior Test Engineer, Product Owner, GenePattern, The Broad Institute of Harvard and MIT, the University of California San Diego

18th Annual Bio·IT World CONFERENCE & EXPO '19

2019 PLENARY **KEYNOTE** PRESENTERS

TUESDAY, APRIL 16 4:00 - 5:00 PM

4:00 Welcome Remarks

Cindy Crowninshield, RDN, LDN, Executive Event Director, Cambridge Healthtech Institute

4:05 Keynote Introduction:

Speaker to be Announced

4:15 Plenary Keynote Presentation

Open Science: From Ideology to Methodology

John Wilbanks
Chief Commons Officer, Sage Bionetworks

From early efforts archiving the scholarly literature and the Bermuda Rules of the Human Genome Project through to the NIH Genomic Data Commons and robust mandates from government funders, we are now decades into the advance of "open" policies for biological and health sciences. With the rise of data science and sensors putting new urgency behind data sharing policies, driving text mining in articles and EHRs, new technologies now mirror and accelerate open policy development. Open science however is not a policy, nor is it a technology, nor is it about a single file or dataset being on the internet. Open science, like science, is fundamentally a methodological practice of knowledge generation – and we should be critically examining how, when, and where open approaches accelerate the creation and distribution of knowledge. Otherwise we risk conflating the rise of open and shared scientific assets with the end goal of increasing knowledge generation. This talk will examine specific cases of open and/or collaborative science including ongoing work at Sage Bionetworks in the AllofUs Research Program.

5:00 Welcome Reception in the Exhibit Hall with Poster Viewing

WEDNESDAY, APRIL 17 8:00 - 9:45 AM

8:00 Welcome Remarks

Allison Proffitt, Editorial Director, Bio-IT World

8:05 Keynote Introduction:

Speaker to be Announced

8:15 Plenary Keynote Panel Discussion

AI in Practice: How New Technologies Are Changing Bio-IT

How is artificial intelligence impacting biology, drug discovery, and life sciences today? Beyond the hype, what are we accomplishing? And what's just around the corner? Bio-IT World editor, Allison Proffitt, sits down with the researchers building this landscape to hash out what's real, what's artificial, and what's next for AI in Bio-IT.

Moderator:

Allison Proffitt
Editorial Director, Bio-IT World

Panelists:

Anne E. Carpenter, PhD
Senior Director of the Imaging Platform, Institute Scientist, Broad Institute of Harvard and MIT

Iya Khalil, PhD
Chief Commercial Officer and Co-Founder, GNS Healthcare

Mariana Nacht, PhD
CSO, Vivid Biosciences; President, Board of Directors, WEST (Women in the Enterprise of Science and Technology)

Susie Stephens, PhD
Senior Director, Oncology & Vaccine R&D Information Technology, Pfizer

9:45 Coffee Break in the Exhibit Hall with Poster Viewing

THURSDAY, APRIL 18 8:00 - 9:45 AM

8:00 Organizer Remarks

Cindy Crowninshield, RDN, LDN, Executive Event Director, Cambridge Healthtech Institute

8:10 Benjamin Franklin Award and Laureate Presentation

J.W. Bizzaro, Managing Director, Bioinformatics.org

8:35 Bio-IT World Innovative Practices Awards

Allison Proffitt, Editorial Director, Bio-IT World

8:50 Keynote Introduction:

Speaker to be Announced

9:00 Plenary Keynote Presentation

Vijay K. Bulusu
Head, Data & Digital Innovation, Pfizer

9:45 Coffee Break in the Exhibit Hall and Poster Competition Winners Announced @ 10:00

Data & Storage Management

Infrastructure and Storage Solutions to Enable Discovery and Ease Data Bloat

Is the burden of managing your data growing larger every day? Do you have a scalable and robust data management infrastructure in place to process, analyze, and store vast quantities of data according to your organization's policies? Is your organization using new tools and analytical processes such as AI and deep learning that stress your supporting IT infrastructure beyond the expectations of system designers? Managing data has become a prevalent issue in the life sciences industry. Organizations are spending millions on systems and platforms to manage and store many types of data (e.g., experimental, operational, clinical) from many disparate sources. The role of data engineering is critical in orchestrating, configuring, managing, and scaling solutions to manage the data bloat problem. The Data & Storage Management track presents in-depth case studies from leading life sciences organizations who are implementing solutions to address these data issues. Presentations will focus on people, process and technology issues related to storage platforms, architectures, integration and migration plans, governance, collaboration, scalability and cost efficiencies.

TUESDAY, APRIL 16

7:00 am Workshop Registration Open and Morning Coffee

8:00 – 11:30 Recommended Morning Pre-Conference Workshops*
W5. Managing Sensitive and HIPAA-Controlled Data with Globus

12:30 – 4:00 pm Recommended Afternoon Pre-Conference Workshops*
W12. Data Science Driving Better Informed Decisions

** Separate registration required. Please click here for details.*

2:00 – 6:30 Main Conference Registration Open

4:00 PLENARY KEYNOTE SESSION
Please click here for details.

5:00 – 7:00 Welcome Reception in the Exhibit Hall with Poster Viewing

WEDNESDAY, APRIL 17

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION
Please click here for details.

9:45 Coffee Break in the Exhibit Hall with Poster Viewing

ARCHITECTING FOR SUCCESS: PLATFORM, DATABASE, DATA SHARING, AND SCALABLE SOLUTIONS

10:50 Chairperson's Remarks

11:00 DB4Sci, Open Source Database as a Service (DBaaS) for On-Prem and Cloud
John Dey, HPC Systems Engineer, Scientific Computing, Fred Hutchinson Cancer Research Center
Cloud-based databases as a service (DBaaS) have extremely simplified database management. We can create database instances using best practice configuration including backup and DR plans with a single push of a button. However, databases are sensitive to latency and cloud-based databases cannot be used effectively from on-prem. Supporting Postgres, MongoDB, MariaDB/MySQL and Neo4J graph databases, DB4Sci is the ideal DBaaS solution for on-premise and multi-cloud deployments that supports high performance backup to cloud storage.

11:30 Data Centralization for Any Lab, Any Equipment, Any Software
Charles Fracchia, Founder and CEO, BioBright
It's all too easy to end up with cloud infrastructures that mirror the shortcomings of local data management. In this talk, we will present how carefully designed software can make data available seamlessly, removing the need for scientists to dig through disparate systems to find what they need and analyze it. We will present a new model that allows data centralization and cloud-based data analysis while minimizing the burden on the scientist and improving workflows and products.

12:00 pm Architecting for Success with Machine Learning Data Platforms for Image Analysis and Precision Medicine
Sponsored by DDN STORAGE
George Vacek, PhD, Global Business Director, Healthcare and Machine Learning, DDN (DataDirect Network)
Aspects of precision medicine, including automated image analysis or mining patient data to better target therapies, leverage AI and deep learning. While early training data fits in-node, successful approaches attract more data. Forward thinking organizations adopt scalable architectures; the unprepared fall behind. We review key considerations for machine-learning platforms ensuring effortless scaling, deeper insights, and shorter path to value.

12:15 Leveraging Distributed Resources to Speed Discovery
Sponsored by Internet2
Dan Taylor, Director, Business Development, Internet2
Few Life Sciences organizations take advantage of the vast resources available to R&D organizations for continuous innovation and keeping pace with big data. This session will discuss the infrastructure underlying collaborations that use private, academic and public resources – including commercial cloud and supercomputing centers storage and processing - to maximize options and speed discovery.

12:30 Session Break

12:40 Luncheon Presentation I to be Announced
Sponsored by WEKA.IO

1:10 Luncheon Presentation II: Rapidly Aggregate and Share Large Data Sets Using IBM Aspera
Sponsored by IBM
Joseph Hansen, Aspera Technical Sales & Delivery Expert, IBM Hybrid Cloud, Aspera IBM
The life sciences industry is generating massive data stores as a result of modern techniques. This rich data is stored in a variety of methods, lacking standardization. Capturing the aggregate value of the data is critical to new discoveries, yet such analysis requires data consolidation. Learn how IBM Aspera accelerates big data analysis in life sciences, using any deployment environment.

1:40 Session Break

DATA SECURITY AND COMPLIANCE

1:50 Chairperson's Remarks
Brigitte Raumann, Product Manager, Globus, University of Chicago

1:55 Achieving Compliant Collaboration: Securely Managing Protected Data to Accelerate Discovery

Brigitte Raumann, Product Manager, Globus, University of Chicago

Researchers working with protected data face many challenges in managing this data and sharing it with colleagues. Meeting compliance requirements is complicated, and investigators must often either slow their process to address this burden, or resort to using distilled, de-identified data instead. With higher assurance levels provided by Globus, the leading research data management service, users can optimize their protected data environments by integrating secure, scalable data management capabilities into existing workflows and applications.

2:25 Talk Title to be Announced

Kris Torgerson, Chief Information and Privacy Officer, Oak Ridge National Laboratory

2:55 Sponsored Presentation *(Opportunity Available)*

3:25 Refreshment Break in the Exhibit Hall with Poster Viewing

INFRASTRUCTURE AUTOMATION TOOLS AND METHODS

4:00 Infrastructure Automation: Real Examples

Karl Gutwin, Senior Scientific Consultant, BioTeam, Inc.

A wide variety of infrastructure automation tooling has existed for many years; however, it is still not consistently used. Automation has the potential to measurably improve clarity, reliability and capacity for engineering and operations teams. This talk walks through prevalent automation tools and gives real, working examples – covering why, how, and what could possibly go wrong when automating your infrastructure.

4:30 Presentation to be Announced

Sponsored by PetaGene

5:00 Genomic Data Compression: The Latest Developments and Advances

Vaughan Wittorff, PhD, Co-Founder & Chief Commercial Officer, PetaGene

This talk will discuss the latest in genomic data compression, building on our Best of Show winning technology.

5:15 Sponsored Presentation *(Opportunity Available)*

5:30 Best of Show Awards Reception in the Exhibit Hall with Poster Viewing

7:00 – 10:00 Bio-IT World After Hours @The Boston Children's Museum

THURSDAY, APRIL 18

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION & AWARDS PROGRAM

Please click here for details.

9:45 Coffee Break in the Exhibit Hall and Poster Competition Winners Announced

BUILDING OUT DATA MANAGEMENT CAPABILITIES

10:30 Chairperson's Remarks

10:40 Talk Title to be Announced

Neil Carlson, Investigator, Medicinal Science & Technology, GSK Cambridge – R&D

11:10 Talk Title to be Announced

Ken Lind, PhD, Computational Chemist, GSK Cambridge – R&D

11:40 Presentation to be Announced

Sponsored by PURESTORAGE

11:55 Sponsored Presentation *(Opportunity Available)*

12:10 pm Session Break

12:20 Luncheon Presentation *(Sponsorship Opportunity Available)* **or Enjoy Lunch on Your Own**

1:20 Dessert Refreshment Break in the Exhibit Hall with Poster Viewing

CONSULTANCIES AND COMPUTING: ASSESSMENTS, ORGANIZATIONAL CHALLENGES & TRENDS

1:55 Chairperson's Remarks

Chris Dwan, Senior Technologist and Independent Life Sciences Consultant

2:00 PANEL DISCUSSION: High Performance Consultancies

Moderator:

Chris Dwan, Senior Technologist and Independent Life Sciences Consultant

Panelists:

Tanya Cashorali, CEO, Founder, TCB Analytics

Aaron Gardner, Director of Technology, BioTeam, Inc.

Eleanor Howe, PhD, Founder and CEO, Diamond Age Data Science

An organization must learn and understand the value of why, when and how to use a consultancy. Highly trained and skilled professional experts gather to discuss their role in leading and managing projects for organizations to help them achieve goals. They will discuss a variety of themes including the best kinds of projects to hire a consultancy for, the timeline of when an organization should hire a consultant vs. full time staff, and big challenges on the horizon. The session will feature short podium presentations, followed by a moderated Q&A panel with attendees. The topic of hiring a consulting company came up in the data science plenary keynote at Bio-IT 2018. We want to spend time at Bio-IT 2019 exploring this topic in finer detail.

3:20 KEYNOTE PRESENTATION: Trends from the Trenches 2019

Chris Dagdigian, Co-Founder and Senior Director, Infrastructure, BioTeam, Inc.

The "Trends from the Trenches" in its original "state of the state address" returns to Bio-IT! Since 2010, the "Trends from the Trenches" presentation, given by Chris Dagdigian, has been one of the most popular annual traditions on the Bio-IT Program. The intent of the talk is to deliver a candid (and occasionally blunt) assessment of the best, the worthwhile, and the most overhyped information technologies (IT) for life sciences. The presentation has helped scientists, leadership, and IT professionals understand the basic topics related to computing, storage, data transfer, networks, and cloud that are involved in supporting data intensive science.

4:00 Conference Adjourns

Data Computing

Advances in Computing Applications for Big Data

There is an increased demand in computing power from life science researchers and scientists tackling big data issues. To do their work, their storage and infrastructure must be able to scale to handle billions of data points and files efficiently. The Data Computing track will explore data computing resources and application deployment tools that are needed to process computational workflows and drive automation, advance analytics capabilities, reproduce software deployment, maximize application performance, and drive broad organizational decision processes.

TUESDAY, APRIL 16

7:00 am Workshop Registration Open and Morning Coffee

8:00 – 11:30 Recommended Morning Pre-Conference Workshops*
W4. AI for Pharma

12:30 – 4:00 pm Recommended Afternoon Pre-Conference Workshops*
W9. Research Project Management

** Separate registration required. Please click here for details.*

2:00 – 6:30 Main Conference Registration Open

4:00 PLENARY KEYNOTE SESSION
Please click here for details.

5:00 – 7:00 Welcome Reception in the Exhibit Hall with Poster Viewing

WEDNESDAY, APRIL 17

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION
Please click here for details.

9:45 Coffee Break in the Exhibit Hall with Poster Viewing

DATA TOOLS AND PLATFORMS FOR PROCESSING WORKFLOWS AND DRIVING AUTOMATION

10:50 Chairperson's Remarks

11:00 Reaction Explorer

Raquel Dias Miranda Hoggett, Small Molecule Workflow Service Manager, F. Hoffmann-La Roche

The presentation will discuss how Roche has addressed the challenges of navigating reactions linked by synthetic route or Intellectual Property space. The following themes will be covered: the Reaction Explorer workflow tool for capturing, processing and mining reaction information; key analysis functionalities such as synthesis trees, reaction component property comparisons, key intermediates & precursors identification; facilitating patent writing, condition optimization and enabling synthesis proposals.

11:30 A Fully Integrated Platform for Pharmacology *in vivo* Study Data Management

Lian Shen, Software Engineer, Five Prime Therapeutics

In vivo studies are an indispensable component of the drug discovery process. However, current study workflow management and data capture mostly involve manual data entries and spreadsheet manipulations, which can be both cumbersome and error-prone. We developed an integrated software platform using in-house development and custom commercial software to streamline end-to-end *in vivo* study workflow management, from protocol design and initiation to data collection, analysis, and reporting.

12:00 pm Presentation to be Announced *Sponsored by* Lucidworks

12:30 Session Break

12:40 Luncheon Presentation I to be Announced *Sponsored by* databiology

1:10 Luncheon Presentation II *(Sponsorship Opportunity Available)*

1:40 Session Break

DATA TOOLS AND PLATFORMS FOR PROCESSING WORKFLOWS AND DRIVING AUTOMATION (CONT.)

1:50 Chairperson's Remarks

1:55 Model of Efficiency: How Automating Data Exchange Can Improve the Flow of Complex Information between Partners in a Distributed Resource Model

Rebecca Carazza, PhD, Director, Research Informatics, Nimbus Therapeutics

As a "virtual" biotechnology company, Nimbus Therapeutics' operations are entirely enabled through partnering with a wide array of academic and contract research organizations across the globe. Within this model, the coordination of data transfer and integration between multiple partners has historically been a challenge and negatively affected the speed and scalability of the organization. After deploying an automated workflow solution, data exchange is scalable, less error prone and content is available to scientific decisionmakers faster.

2:25 Automating Workflows in Bioscience Research: Approaches and Examples

Rachana Ananthakrishnan, Head of Products, Globus, University of Chicago

This talk describes the Globus research data management platform and illustrates how it can be used to automate research data flows. Through hands-on examples and references to implementations in bioscience projects, we will demonstrate how to leverage Globus to provide researchers with scalable, automated data management capabilities. We will also describe how Globus REST APIs may be combined with high-speed networks to provide a research data platform on which developers can create entirely new classes of scientific applications, portals, and gateways in the life sciences.

2:55 Sponsored Presentation *(Opportunity Available)*

3:25 Refreshment Break in the Exhibit Hall with Poster Viewing

DATA TOOLS AND PLATFORMS FOR PROCESSING WORKFLOWS AND DRIVING AUTOMATION (CONT.)

4:00 How to Be "In the Flow": Combining Business Process and Data Flows for End-to-End Automated Laboratory Workflows

Andreas Steinbacher, PhD, R&D Informatics and Machine Learning/ Artificial Intelligence Leader for Lab Automation, Roche Innovation Center Munich

Currently the automation-level of end-to-end laboratory workflows in the life science research space is rather low. This results from a strong focus on automating single workflow steps with separated instruments/integrations, and on the other hand, from the need of flexible (re-)configuration of laboratory workflows in a research

environment. Business process modelling and management tools are successfully applied in other industries and are also proposed as a solution for life science automation. However, typically they lack to track the corresponding data flow. This talk aims at identifying the essential requirements of an end-to-end laboratory workflow automation and how business process management tools can help to achieve this goal.

4:30 End-to-End Sample Tracking in the Laboratory Using a Custom Internet of Things Device

William Neil, Laboratory Automation Specialist, Bristol-Myers Squibb

5:00 Sponsored Presentation *(Opportunity Available)*

5:30 Best of Show Awards Reception in the Exhibit Hall with Poster Viewing

7:00 – 10:00 Bio-IT World After Hours @The Boston Children's Museum

THURSDAY, APRIL 18

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION & AWARDS PROGRAM

Please click here for details.

9:45 Coffee Break in the Exhibit Hall and Poster Competition Winners Announced

10:30 Chairperson's Remarks

ACCELERATING RESEARCH THROUGH ADVANCED COMPUTING RESOURCES

10:40 Accelerating Neuroscience Research Utilizing Advanced Research Computing Resources

Mahmood Mohammadi Shad, PhD, Scientific Software Engineer, FAS Research Computing, Harvard University

Working on cutting-edge research on discovering brain mysteries requires dealing with a large amount of data processing and interacting with advanced software tools in order to facilitate the research. Research Computing at Harvard University provides the storage/compute infrastructure as well as research software engineering (RSE) services to different labs within the Center for Brain Science (CBS). Three different projects in Ölveczky Lab at CBS will be presented to show how advanced RSE combined with modern storage/compute resource is shaping the research on the brain.

11:10 Improving Laboratory Ordering Patterns and Patient Safety Using Integrated Electronic Health Record (EHR) and Laboratory Information System (LIS): The Brigham and Women's Hospital Experience

Milenko Tanasijevic, MD, MBA, Vice Chair for Clinical Pathology and Quality, Department of Pathology, Brigham and Women's Hospital and Dana-Farber Cancer Institute; Director of Clinical Laboratories, Brigham and Women's Hospital; Associate Professor of Pathology, Harvard Medical School

We report on the features and advantages of an integrated EHR/LIS laboratory ordering system in a large, academic-based tertiary medical center. The system consists of an EHR-based computerized physician order entry system, positive patient identification system for both nursing and phlebotomy staff, order communication to the LIS and an automated, robotic routine chemistry and hematology systems with result auto-filing capabilities. We present a detailed timeline of the system's development along with benefits for patient care and lessons learned during the process.

11:40 Sponsored Presentation *(Opportunity Available)*

12:10 pm Session Break

12:20 Luncheon Presentation *(Sponsorship Opportunity Available)* **or Enjoy Lunch on Your Own**

1:20 Dessert Refreshment Break in the Exhibit Hall with Poster Viewing

CONSULTANCIES AND COMPUTING: ASSESSMENTS, ORGANIZATIONAL CHALLENGES & TRENDS

1:55 Chairperson's Remarks

Chris Dwan, Senior Technologist and Independent Life Sciences Consultant

2:00 PANEL DISCUSSION: High Performance Consultancies

Moderator:

Chris Dwan, Senior Technologist and Independent Life Sciences Consultant

Panelists:

Tanya Cashorali, CEO, Founder, TCB Analytics

Aaron Gardner, Director of Technology, BioTeam, Inc.

Eleanor Howe, PhD, Founder and CEO, Diamond Age Data Science

An organization must learn and understand the value of why, when and how to use a consultancy. Highly trained and skilled professional experts gather to discuss their role in leading and managing projects for organizations to help them achieve goals. They will discuss a variety of themes including the best kinds of projects to hire a consultancy for, the timeline of when an organization should hire a consultant vs. full time staff, and big challenges on the horizon. The session will feature short podium presentations, followed by a moderated Q&A panel with attendees. The topic of hiring a consulting company came up in the data science plenary keynote at Bio-IT 2018. We want to spend time at Bio-IT 2019 exploring this topic in finer detail.

3:20 KEYNOTE PRESENTATION: Trends from the Trenches 2019

Chris Dagdigian, Co-Founder and Senior Director, Infrastructure, BioTeam, Inc.

The "Trends from the Trenches" in its original "state of the state address" returns to Bio-IT! Since 2010, the "Trends from the Trenches" presentation, given by Chris Dagdigian, has been one of the most popular annual traditions on the Bio-IT Program. The intent of the talk is to deliver a candid (and occasionally blunt) assessment of the best, the worthwhile, and the most overhyped information technologies (IT) for life sciences. The presentation has helped scientists, leadership, and IT professionals understand the basic topics related to computing, storage, data transfer, networks, and cloud that are involved in supporting data intensive science.

4:00 Conference Adjourns

Software Applications & Services

Tools that Best Utilize Data to Drive Scientific & Clinical Decision Making

TRACK 3

As data generation increases, there is a need for workflows that are reproducible across infrastructures, able to empower scientists and researchers to apply cutting-edge analysis methods. A main challenge is scientific data is not centralized or standardized and is fragmented – from instrumentation to clinical research to legacy software. The Software Applications & Services track explores how biopharma companies are utilizing software tools to leverage data platforms to advance data strategies. Themes of case studies that will be presented will focus on data analytics approaches, data methods and standards approaches, transparency, efficiency, security, and cost-effective solutions.

TUESDAY, APRIL 16

7:00 am Workshop Registration Open and Morning Coffee

8:00 – 11:30 Recommended Morning Pre-Conference Workshops*
W1. Data Management for Biologics: Registration and Beyond

12:30 – 4:00 pm Recommended Afternoon Pre-Conference Workshops*
W9. Research Project Management

** Separate registration required. Please click here for details.*

2:00 – 6:30 Main Conference Registration Open

4:00 PLENARY KEYNOTE SESSION
Please click here for details.

5:00 – 7:00 Welcome Reception in the Exhibit Hall with Poster Viewing

WEDNESDAY, APRIL 17

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION
Please click here for details.

9:45 Coffee Break in the Exhibit Hall with Poster Viewing

TOOLS THAT BEST UTILIZE DATA TO DRIVE CLINICAL DECISION-MAKING AND BIOLOGICAL KNOWLEDGE

10:50 Chairperson's Remarks

11:00 Making Clinical Data Available to Researchers at the Princess Máxima Center for Pediatric Oncology with tranSMART and cBioPortal

Patrick Kemmeren, PhD, Principal Investigator, Princess Máxima Center for Pediatric Oncology

The Princess Máxima Center for Pediatric Oncology is the centralized pediatric oncology center for all children with cancer in the Netherlands since 2018. Attendees will learn about our new center, how to set up research IT infrastructure in a (inter)nationally oriented research hospital, without being limited by legacy software. Besides this, they will be informed on the latest developments on an important set of open source research IT software tools, including tranSMART, Glowing Bear and cBioPortal.

11:30 CO-PRESENTATION: Building a Standards-Based Clinical Data Resource for Cancer: Challenges, Goals, and Progress

John Methot, Director, Health Informatics Architecture, Dana-Farber Cancer Institute

Eva Lepisto, Data Services Team Lead, Dana-Farber Cancer Institute

Oncology's pioneering role in precision medicine has led to routine tumor sequencing; Dana-Farber has clinically sequenced more than 30,000 tumors. However, the incompleteness and inconsistency of clinical data from EHRs and other sources present significant challenges to building the patient-specific diagnosis, treatment and outcome data that are required to discover correlates to genomic data that inform diagnosis, prognosis, and personalized treatment. At DFCI, we are striving to improve the quality and coverage of clinical data decision support.

12:00 pm Presentation to be Announced

Sponsored by discngine

12:15 Presentation to be Announced

Sponsored by Copyright Clearance Center

12:30 Session Break

12:40 Luncheon Presentation I to be Announced

Sponsored by idbs

1:10 Luncheon Presentation II *(Sponsorship Opportunity Available)*

1:40 Session Break

TOOLS THAT BEST UTILIZE DATA TO DRIVE CLINICAL DECISION-MAKING AND BIOLOGICAL KNOWLEDGE (CONT.)

1:50 Chairperson's Remarks

Susan A. Roberts, Senior Director, Scientific Computing, Vertex Pharmaceuticals

1:55 Turning WGS Genetic Testing into a Dialogue between Physicians and Labs with GenomeDiver

Christian Stolte, Data Visualization Designer, Informatics Research Innovation, New York Genome Center

Developed as part of the NYCKidSeq project, GenomeDiver fosters a dialogue between the clinician and genetic testing lab. The software leverages the physician's knowledge of their patient by asking them to provide additional information to the lab, which then forms the basis for reanalysis. It delivers understandable information about mutations in the entire genome, using knowledge about functional variants coming from an increasing number of public sources, in particular the GTEx project.

2:25 Crowdsourcing Network Biology

William Hayes, PhD, CTO, BioDati, Inc.

Through the use of a publicly available application, BioDati Studio, and an open standards-based language, BEL, we provide an application and platform to allow users to take standard, shareable notes as BEL Nanopubs. These Nanopubs are processed into Edges, which are stored in a database and used to create networks for any biological context, drive insights, and power analytics. BioDati Studio powers network biology by providing the capability to host biological knowledge from a variety of sources and provide powerful knowledge sharing/collaboration for the life sciences.

2:55 Scientific Information Management (SIM) – Elevating the Health and Science Process to the Next Level

Sponsored by L7INFORMATICS

Robert Zeigler, PhD, Director, Customer Solutions, L7 Informatics, Inc.

Precision medicine and new classes of treatments, including gene and cell therapies, require a new category of companion informatics platforms that automate and synchronize complex drug discovery and therapeutic processes. This talk will discuss how to enable SIM from bench to bedside in life sciences and healthcare organizations with real-world case studies.

3:10 Sponsored Presentation *(Opportunity Available)*

3:25 Refreshment Break in the Exhibit Hall with Poster Viewing

SOFTWARE TOOLS AND METHODS TO FACILITATE DATA MANIPULATION, CALCULATION, GRAPHICAL DISPLAY, AND IMPROVED USER INTERFACES

4:00 beRi Suite of Tools for Managing the R Language

Robert Gilmore, Researcher II, Psychiatry and Human Behavior, University of Mississippi Medical Center

beRi "beri environments for R installations" is an R environment, R installation, and R package management system for the R programming language. beRi is a suite of Python packages composed of the following components: (1) renv, a virtual environment manager for R; (2) rinse, an R version manager; and (3) rut, an R utility tool for installing packages. These CLIs were originally developed at Hackseq 2018 at which the project won by popular vote.

4:30 Design Ops in Life Science UX

Kirk Brote, Director, Communications Team, UX Working Group, The Pistoia Alliance

Last year the Pistoia Alliance introduced a UX toolkit specific to Life Science to address the lack of design methodology in the biopharmaceutical industry. Design Ops for Life Science UX makes it possible to take those tools and workflows and distribute them across all of your working teams to accelerate innovation, a critical goal in the bio-IT space, where stakes are high and patients are in need.

5:00 Sponsored Presentation *(Opportunity Available)*

5:30 Best of Show Awards Reception in the Exhibit Hall with Poster Viewing

7:00 – 10:00 Bio-IT World After Hours @The Boston Children's Museum

THURSDAY, APRIL 18

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION & AWARDS PROGRAM

Please click here for details.

9:45 Coffee Break in the Exhibit Hall and Poster Competition Winners Announced

IMPLEMENTING INNOVATIVE CLINICAL TRIAL AND PROJECT DESIGNS

10:30 Chairperson's Remarks

10:40 CO-PRESENTATION: Implementation of Complex Innovative Designs (CID) at Janssen

Raj Malathker, Manager, Quantitative Sciences IT, Janssen Pharmaceuticals R&D

Vlad Dragalin, PhD, Vice President & Scientific Fellow, Global Quantitative Sciences, Janssen Pharmaceuticals R&D

Both the 21st Century Cures Act and the PDUFA VI legislations call for wider use and acceptance of complex innovative clinical trial designs with the goal of streamlining drug development and bringing needed new medicines to patients in a more timely and efficient manner. We are the first PhRMA company to build an in-house platform, aptly named ACTIVE (Adaptive Clinical Trial's Interactive Virtual Environment), for efficient implementation of such complex innovative designs.

11:10 Effectively Complete Your Projects

Gurpreet Kanwar, MBA, PMP, Senior Project Manager, NAV CANADA

Most organizations say they have too many projects on the go and are not able to manage with backlog still growing. They want to achieve a high throughput of successful projects, however many are unable or unwilling to allocate an appropriate level of resourcing to approved initiatives. Methodologies to execute projects are not consistent and lacking standard processes. There is a need to manage project delivery expectations, satisfaction of business stakeholders and balance the demand to help them achieve their strategic goal.

11:40 Sponsored Presentation *(Opportunity Available)*

12:10 pm Session Break

12:20 Luncheon Presentation *(Sponsorship Opportunity Available)* **or Enjoy Lunch on Your Own**

1:20 Dessert Refreshment Break in the Exhibit Hall with Poster Viewing

CONSULTANCIES AND COMPUTING: ASSESSMENTS, ORGANIZATIONAL CHALLENGES & TRENDS

1:55 Chairperson's Remarks

Chris Dwan, Senior Technologist and Independent Life Sciences Consultant

2:00 PANEL DISCUSSION: High Performance Consultancies

Moderator:

Chris Dwan, Senior Technologist and Independent Life Sciences Consultant

Panelists:

Tanya Cashorali, CEO, Founder, TCB Analytics

Aaron Gardner, Director of Technology, BioTeam, Inc.

Eleanor Howe, PhD, Founder and CEO, Diamond Age Data Science

An organization must learn and understand the value of why, when and how to use a consultancy. Highly trained and skilled professional experts gather to discuss their role in leading and managing projects for organizations to help them achieve goals. They will discuss a variety of themes including the best kinds of projects to hire a consultancy for, the timeline of when an organization should hire a consultant vs. full time staff, and big challenges on the horizon. The session will feature short podium presentations, followed by a moderated Q&A panel with attendees. The topic of hiring a consulting company came up in the data science plenary keynote at Bio-IT 2018. We want to spend time at Bio-IT 2019 exploring this topic in finer detail.

3:20 KEYNOTE PRESENTATION: Trends from the Trenches 2019

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4:00 Conference Adjourns

Bioinformatics

Computational Resources and Tools to Turn Big Data into Smart Data

TRACK 4

The Bioinformatics track assembles thought leaders who will present case studies using computational resources and tools that take data from multiple –omics sources and align it with clinical action. Turning big data into smart data can lead to real time assistance in disease prevention, prognosis, diagnostics, and therapeutics. With the ever-increasing volume of information generated for curing or treating diseases and cancers, bioinformatics technologies, tools and techniques play a critical role in turning data into actionable knowledge to meet unstated and unmet medical needs.

TUESDAY, APRIL 16

7:00 am Workshop Registration Open and Morning Coffee

8:00 – 11:30 Recommended Morning Pre-Conference Workshops*
W2. Data Visualization to Accelerate Biological Discovery

12:30 – 4:00 pm Recommended Afternoon Pre-Conference Workshops*
W10. Digital Biomarkers in Pharma R&D: Technical Challenges and Strategies for Advancing Personalized Medicine

** Separate registration required. Please click here for details.*

2:00 – 6:30 Main Conference Registration Open

4:00 PLENARY KEYNOTE SESSION
Please click here for details.

5:00 – 7:00 Welcome Reception in the Exhibit Hall with Poster Viewing

WEDNESDAY, APRIL 17

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION
Please click here for details.

9:45 Coffee Break in the Exhibit Hall with Poster Viewing

MULTIFUNCTIONAL PLATFORMS FOR MANAGING OMICS DATASETS

10:50 Chairperson's Remarks

11:00 Visualizing and Integrating Pathway Information
Sebastian Scharf, PhD, Data Scientist, Roche

One approach in drug discovery that is becoming more and more popular is looking at pathways instead of single genes to address the needs in the clinic today. More and more projects involve this more complex view when unraveling disease biology as well as assessing novel therapeutic targets. In this talk, we present a tool to visualize and integrate information from pathways and other sources to allow streamlined decision making based on different available data.

11:30 Identifying Key Mechanisms of Alzheimer's Disease with Omics Data
Sudeshna Das, PhD, Assistant Professor, Neurology, Massachusetts General Hospital/Harvard Medical School

We have developed advanced methods to analyze and visualize publicly-available genomics and genetics data. The tools include a composite clinical-neuropathological score for defining AD, gene expression maps in the brain, and networks integrating omics data to understand the impact of polymorphisms on AD pathways. Our methods identified important genes in the pathophysiology of AD that provide further insight into the calcium signaling and calcineurin pathways.

12:00 pm Advanced Bioinformatics Techniques for Biologics Drug Discovery
Sponsored by dotmatics
Andrew LeBeau, PhD, Senior Manager, Biologics Marketing, Marketing, Dotmatics

Biologics drug discovery requires advanced analytics methods to associate design changes (i.e., targeted mutations) in sequence structure with experimental performance in screening assays. Applying knowledge from small molecule drug discovery, adapted to sequence-based compounds, this presentation will cover a range of techniques, spanning global, neighborhood, and local computations.

12:15 Presentation to be Announced
Sponsored by Clarivate Analytics

12:30 Session Break

12:40 Luncheon Presentation I to be Announced
Sponsored by ELSEVIER

1:10 Luncheon Presentation II *(Sponsorship Opportunity Available)*

1:40 Session Break

REVOLUTIONIZING DRUG DEVELOPMENT WITH NEW DISEASE MODELS AND SIMULATION METHODS: CASE STUDIES OF COLLABORATIVE GLOBAL EFFORTS

1:50 PANEL DISCUSSION: Revolutionizing Drug Development with New Disease Models and Simulation Methods: Case Studies of Collaborative Global Efforts
Chairperson and Moderator:
Anil Srivastava, President, Open Health Systems Laboratory
Panelists:
Jeffrey Buchsbaum, MD, PhD, AM, Medical Officer and Program Director, Radiation Research Program, Division of Cancer Treatment and Diagnosis, National Cancer Institute/NIH
Rajendra Joshi, PhD, Associate Director and HOD Bioinformatics Group, Centre for Development of Advanced Computing (C-DAC), Pune University Campus
Tonglei Li, PhD, Allen Chao Chair and Professor of Department of Industrial and Physical Pharmacy, College of Pharmacy, Purdue University

2:55 Sponsored Presentation *(Opportunity Available)*

3:25 Refreshment Break in the Exhibit Hall with Poster Viewing

BIOMARKER DETERMINATION IN A DIAGNOSTIC CONTEXT: ISSUES AND CHALLENGES WITH IDENTIFICATION, VALIDATION, DEVELOPMENT, AND IMPLEMENTATION OF TOOLS FOR CANCER SCREENING, DIAGNOSIS, AND TREATMENT

4:00 PANEL DISCUSSION: The Difference between Biomarkers and Diagnostics: It's Bigger Than You Think
Moderator:

Michael N. Liebman, PhD, IPQ Analytics, LLC and Strategic Medicine, Inc.

Panelists:

Michael Montgomery, MD, Global Executive Director, Incyte Corporation

Jonathan Morris, MD, Vice President, Provider Solutions; Chief Medical Informatics Officer, Real World Insights, IQVIA

Jun Zhu, PhD, Professor, Genetics and Genomic Sciences, Icahn School of Medicine at Mount Sinai

Biomarkers are used to evaluate cancer risk, detect end stage cancer and suggest optimal therapy for specific patients. Recent advances in -omics research continue to enable researchers to classify molecular fingerprints of specific cancers. Discovery and development of new cancer markers remains a major research focus to improve screening, diagnosis, and treatment but is hampered by the limited knowledge of the details of disease progression. This challenges the ability to identify markers that may be causal rather than correlative and impacts their use as true diagnostics. By example, literature analysis of 250,000 papers listing biomarkers in cancer yield less than 100 FDA approved diagnostics. Every experiment yields a biomarker; however, every experiment does not yield a diagnostic that can more accurately drive clinical action. How can we close this gap? It is critical to develop a better understanding of the disease process and how observations from genomics, proteomics, and metabolomics may impact that process in different ways. This interactive panel will explore experimental and analytic methods, issues and challenges impacting identification, validation, development and implementation in cancer, diagnosis and treatment.

5:00 Sponsored Presentation *(Opportunity Available)*

5:30 Best of Show Awards Reception in the Exhibit Hall with Poster Viewing

7:00 – 10:00 Bio-IT World After Hours @The Boston Children's Museum

THURSDAY, APRIL 18

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION & AWARDS PROGRAM

Please click here for details.

9:45 Coffee Break in the Exhibit Hall and Poster Competition Winners Announced

STANDARD MEASURES AND BIOINFORMATICS TOOLS FOR COLLABORATIVE RESEARCH AND PRECISION MEDICINE IMPLEMENTATION

10:30 Chairperson's Remarks

10:40 CO-PRESENTATION: Standard Measures and Bioinformatics Tools for Collaborative Research

Carol M. Hamilton, PhD, Senior Director, Bioinformatics, Research Computing Division, RTI International

Stephen W. Edwards, PhD, Bioinformatics Senior Scientist, Research Computing Division, RTI International

The web-based PhenX (consensus measures for Phenotypes and eXposures) Toolkit is a catalog of standard measures to facilitate collaborative biomedical research. The PhenX Toolkit provides information about the protocols and tools to help integrate the protocols into existing study designs. PhenX collaborates with other resources and initiatives. With the increased emphasis on data sharing by the NIH, standard measures are more important than ever to maximize the impact of precision medicine initiatives such as TOPMed and All of Us.

11:10 Oncology Big Data Efforts in China: A Combination of Medical Informatics and Bioinformatics

Weike Mo, PhD, FAACC, Vice President, Precision Medicine, Digital China Health

As a governmental effort, China National Cancer Center is building a centralized medical data platform for all Chinese cancer patients with Digital China Health, a private partner for the project. To date, we have collected data for more than 6 million patients from over 30 oncology specialty hospitals. We have applied medical informatics, bioinformatics, and artificial intelligence technologies to clean up, structure, and utilize all the data. Although we are at an early stage of understanding the big data set, we have seen its potential to revolutionize precision medicine practice in hospitals, insurance companies, as well as pharmaceutical companies.

11:40 Sponsored Presentation *(Opportunity Available)*

12:10 pm Session Break

12:20 Luncheon Presentation *(Sponsorship Opportunity Available)* **or Enjoy Lunch on Your Own**

1:20 Dessert Refreshment Break in the Exhibit Hall with Poster Viewing

METHODS AND MODELS TO BETTER UTILIZE DATA FOR RISK ASSESSMENT, DIAGNOSIS AND TREATMENT DECISIONS

1:55 Chairperson's Remarks

Yuval Itan, PhD, Assistant Professor, Department of Genetics and Genomic Sciences; Member, Charles Bronfman Institute for Personalized Medicine, Icahn School of Medicine at Mount Sinai

2:00 Pinpointing Transcript-Damaging Disease-Causing Variants as a Major Step towards RNA Therapeutics

Sahar Gelfman, PhD, Associate Research Scientist, Columbia University Medical Center

Since its publication in 2017, the Transcript-inferred Pathogenicity (TraP) model has become a major resource for genetic diagnostics, identifying pathogenic non-coding variants, and helping to change the common conception that pathogenic genetic variation is caused solely by coding mutations. TraP has been incorporated in diagnostic pipelines in tens of research institutes worldwide. TraP is also available as a website for single queries (www.trap-score.org), providing successful diagnosis of genetic disorders and affecting treatment decisions.

2:30 AI Assisted Rapid Clinical Whole Genome Sequencing for Critical Care

Ray Veeraraghavan, PhD, Director of IT & Informatics, Rady Children's Institute for Genomic Medicine

3:00 Deciphering the Complex Heterogeneity of Cancer

Patrice M. Milos, PhD, Co-Founder/President and CEO, Medley Genomics, Inc.

Medley Genomics provides a software platform that uses patent-pending algorithms and advanced data analytics to describe a patient's diverse tumor cell mixture. This enables creation of unique molecular diagnostic fingerprints for improving patient diagnosis, monitoring and treatment of cancer, and helps to improve novel oncology therapies and therapeutic combinations including individual cancer vaccine development.

3:30 Estimating Genotypic Heterogeneity Underlying Human Disease

Yuval Itan, PhD, Assistant Professor, Department of Genetics and Genomic Sciences; Member, Charles Bronfman Institute for Personalized Medicine, Icahn School of Medicine at Mount Sinai

Whole exome and whole genome sequencing provide hundreds of thousands of genetic variants per patient, of them only very few are pathogenic. Current computational methods are inefficient in differentiating pathogenic mutations from neutral genetic variants that are predicted to be damaging and cannot predict the functional

outcome of mutations. We will present deep learning approaches and machine learning methods in the role of detecting pathogenic mutations. Visualization tools for better utilizing NGS data will be presented to understand human disease genomics.

4:00 Conference Adjourns

Next-Gen Sequencing Informatics

Advances in Large-Scale Computing

TRACK 5

Tremendous advancements have been made to broaden NGS applications from research to the clinic. Especially as genomics becomes more integrated with precision medicine initiatives. In spite of this, enormous challenges for NGS still exist including data analysis pipelines and platforms; data integration, interpretation and visualization; application of sequencing to cancer, immunology, diagnostics, and therapeutic development and emerging sequencing technologies. The Next-Gen Sequencing Informatics track presents case studies on these challenges.

TUESDAY, APRIL 16

7:00 am Workshop Registration Open and Morning Coffee

8:00 – 11:30 Recommended Morning Pre-Conference Workshops*
W6. DNA Sequencing 101

12:30 – 4:00 pm Recommended Afternoon Pre-Conference Workshops*
W12. Data Science Driving Better Informed Decisions

** Separate registration required. Please click here for details.*

2:00 – 6:30 Main Conference Registration Open

4:00 PLENARY KEYNOTE SESSION
Please click here for details.

5:00 – 7:00 Welcome Reception in the Exhibit Hall with Poster Viewing

WEDNESDAY, APRIL 17

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION
Please click here for details.

9:45 Coffee Break in the Exhibit Hall with Poster Viewing

CURRENT AND EMERGING TECHNOLOGIES

10:50 Chairperson's Remarks

11:00 Genome Graphs and Long Read Sequencing
Ben Busby, PhD, Lead, Bioinformatics Training, National Center for Biotechnology Information (NCBI)
Additional Speakers to be Announced

12:00 pm Sponsored Presentation *(Opportunity Available)*

12:30 Session Break

12:40 Luncheon Presentation I: Querying UK Biobank & Simons Foundation through One API

Sponsored by WuXiNextCODE

Alex Joyner, PhD, Senior Field Application Scientist, Application Sciences, WuXi NextCODE

A technical demonstration of how to use GORdb to query genomic and phenotypic data across multiple biobanks. Using the R software development kit for GORdb, bioinformaticians can easily interrogate genomic data using a unified schema and query language from their favorite programming language to build a cross-biobank group of affected Epilepsy cases using samples from Simons Foundation and UK Biobank.

1:10 Luncheon Presentation II *(Sponsorship Opportunity Available)*

1:40 Session Break

DATA VISUALIZATION, EXPLORATION & ANALYSIS

1:50 Chairperson's Remarks
Jeffrey Rosenfeld, PhD, Manager of the Biomedical Informatics Shared Resource and Assistant Professor of Pathology, Rutgers Cancer Institute of NJ

1:55 AbbVie's Target and Genomics Compilation (ATGC): A Target Knowledge Platform
Rishi Gupta, PhD, Senior Research Scientist, Information Research, AbbVie, Inc.
Author: Anne-Sophie Barthelet, Scientific Developer, Discngine

ATGC is a web-based platform that allows AbbVie scientists to gather relevant information to make accurate decisions on target ID, target validation, biomarker selection and drug discovery. This platform provides in-depth information on several key pieces of information such as gene expression, RNA expression, protein expression, mouse knockout studies, etc. for each target. This talk focuses on key aspects of this application including application architecture, currently available tool sets and how various pieces of information are provided to the user.

2:25 Single Cell Analysis
Speaker to be Announced

2:55 Sponsored Presentation *(Opportunity Available)*

3:25 Refreshment Break in the Exhibit Hall with Poster Viewing

NGS APPROACHES FOR CANCER

4:00 Comparison of Different Approaches for Clinical Cancer Sequencingt.
Jeffrey Rosenfeld, PhD, Manager of the Biomedical Informatics Shared Resource and Assistant Professor of Pathology, Rutgers Cancer Institute of NJ

The sequencing of tumors is important for guiding the treatment of cancer patients. While it is agreed that there is a need to perform sequencing of the tumor, there are a wide variety of approaches ranging from paired whole genome tumor-normal sequencing to tumor-only small panel sequencing with many intermediate possibilities. Each of the approaches has a different cost and associated benefit. I will present a comparison of different methods and their efficacy for guiding cancer treatment.

4:30 Presentation to be Announced

5:00 Sponsored Presentation *(Opportunity Available)*

5:30 Best of Show Awards Reception in the Exhibit Hall with Poster Viewing

7:00 – 10:00 Bio-IT World After Hours @The Boston Children's Museum

THURSDAY, APRIL 18

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION & AWARDS PROGRAM
Please click here for details.

9:45 Coffee Break in the Exhibit Hall and Poster Competition Winners Announced

SEQUENCING APPROACHES AND VARIANT ANNOTATION FOR HUMAN DISEASE AND GENETIC DISORDERS

10:30 Chairperson's Remarks

10:40 Leveraging Human Genetic Electronic Medical Record-Linked Biobank Data to Guide Drug Discovery
Ron Do, PhD, Assistant Professor, Department of Genetics and Genomic Sciences, Icahn School of Medicine at Mount Sinai

High failure rates of drug development in clinical trials are due in large part to inefficacy of drug therapeutics, and unforeseen adverse side effects. Genetic associations from genome-wide association (GWA) studies have shown potential in guiding drug target prioritization. Electronic medical record (EMR)-linked biobank data have recently emerged as a source to conduct GWA scans on a broad spectrum of medical and clinical phenotypes. My talk will evaluate the utility of such data in the context of drug research and development.

11:10 VCPA - A Cloud-Based SNP/Indel Variant Calling Pipeline and Data Management Tool Used for Analysis of WGS/WES for the Alzheimer's Disease Sequencing Project
Yuk Yee Leung, PhD, Research Assistant Professor, Pathology and Laboratory Medicine, Perelman School of Medicine, University of Pennsylvania

The Alzheimer's Disease Sequencing Project (ADSP) will analyze whole-genome sequencing (WGS) from > 20,000 late-onset AD patients and cognitively normal elderly to find new genetic variants associated with disease risk. To process all sequencing data consistently and efficiently, "Variant Calling Pipeline and Data Management Tool" (VCPA) was developed by the Genome Center for Alzheimer's Disease in collaboration with ADSP. VCPA is optimized for large-scale production of WGS data and includes a tracking database with web frontend for users to track production.

11:40 Sponsored Presentation *(Opportunity Available)*

12:10 pm Session Break

12:20 Luncheon Presentation *(Sponsorship Opportunity Available)* **or Enjoy Lunch on Your Own**

1:20 Dessert Refreshment Break in the Exhibit Hall with Poster Viewing

METHODS AND MODELS TO BETTER UTILIZE DATA FOR RISK ASSESSMENT, DIAGNOSIS AND TREATMENT DECISIONS

1:55 Chairperson's Remarks
Yuval Itan, PhD, Assistant Professor, Department of Genetics and Genomic Sciences; Member, Charles Bronfman Institute for Personalized Medicine, Icahn School of Medicine at Mount Sinai

2:00 Pinpointing Transcript-Damaging Disease-Causing Variants as a Major Step towards RNA Therapeutics
Sahar Gelfman, PhD, Associate Research Scientist, Columbia University Medical Center

Since its publication in 2017, the Transcript-inferred Pathogenicity (TraP) model has become a major resource for genetic diagnostics, identifying pathogenic non-coding variants, and helping to change the common conception that pathogenic genetic variation is caused solely by coding mutations. TraP has been incorporated in diagnostic pipelines in tens of research institutes worldwide. TraP is also available as a website for single queries (www.trap-score.org), providing successful diagnosis of genetic disorders and affecting treatment decisions.

2:30 AI Assisted Rapid Clinical Whole Genome Sequencing for Critical Care
Ray Veeraraghavan, PhD, Director of IT & Informatics, Rady Children's Institute for Genomic Medicine

3:00 Deciphering the Complex Heterogeneity of Cancer
Patrice M. Milos, PhD, Co-Founder/President and CEO, Medley Genomics, Inc.

Medley Genomics provides a software platform that uses patent-pending algorithms and advanced data analytics to describe a patient's diverse tumor cell mixture. This enables creation of unique molecular diagnostic fingerprints for improving patient diagnosis, monitoring and treatment of cancer, and helps to improve novel oncology therapies and therapeutic combinations including individual cancer vaccine development.

3:30 Estimating Genotypic Heterogeneity Underlying Human Disease
Yuval Itan, PhD, Assistant Professor, Department of Genetics and Genomic Sciences; Member, Charles Bronfman Institute for Personalized Medicine, Icahn School of Medicine at Mount Sinai

Whole exome and whole genome sequencing provide hundreds of thousands of genetic variants per patient, of them only very few are pathogenic. Current computational methods are inefficient in differentiating pathogenic mutations from neutral genetic variants that are predicted to be damaging and cannot predict the functional outcome of mutations. We will present deep learning approaches and machine learning methods in the role of detecting pathogenic mutations. Visualization tools for better utilizing NGS data will be presented to understand human disease genomics.

4:00 Conference Adjourns

FAIR Data

Making Data More Findable, Accessible, Interoperable, and Reusable

As the volume of data being produced by pharma companies, medical centers, and academic organizations continues to rise, the capacity for fully making use of this data is being hampered by a series of limitations. The FAIR (findable, accessible, interoperable, reusable) principles are a very powerful initiative which has the potential to significantly increase the value of data sets. The FAIR Data track, which complements the Bio-IT Hackathon, brings together data scientists who are pioneering the use of FAIR data, with specific examples of how its use is enhancing the value of the data for specific applications including, but not limited to, omics, imaging, and clinical trial data.

TUESDAY, APRIL 16

7:00 am Workshop Registration Open and Morning Coffee

8:00 – 11:30 Recommended Morning Pre-Conference Workshops*
W5. Managing Sensitive and HIPAA-Controlled Data with Globus

12:30 – 4:00 pm Recommended Afternoon Pre-Conference Workshops*
W14. The Gene Pattern Notebook Environment for Open Science and Reproducible Bioinformatics Research

** Separate registration required. Please click here for details.*

2:00 – 6:30 Main Conference Registration Open

4:00 PLENARY KEYNOTE SESSION
Please click here for details.

5:00 – 7:00 Welcome Reception in the Exhibit Hall with Poster Viewing

WEDNESDAY, APRIL 17

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION
Please click here for details.

9:45 Coffee Break in the Exhibit Hall with Poster Viewing

ADVANCEMENTS IN FAIR DATA

10:50 Chairperson's Remarks

11:00 Community Convergence onto an Internet of FAIR Data and Services
Erik Schultes, PhD, International Science Coordinator, GO FAIR International Support and Coordination

11:30 FAIRness and Accountability: Expectations vs. Reality
Helena Deus, PhD, Technology Research Director, Elsevier Labs, Elsevier, Inc.
For many scientists, the prose and charts on a scientific article constitute the proper way to report scientific data. From a data scientist's perspective, there is an expectation that scientific data is findable, available, interoperable and reproducible. There is a gap between expectations and reality. In this talk, we will dive deeper into that gap and explore how and why that gap is wider or narrower in different scientific domains.

12:00 pm Presentation to be Announced *Sponsored by* DELL EMC

12:15 Sponsored Presentation *(Opportunity Available)*

12:30 Session Break

12:40 Luncheon Presentation I: Accelerating Discovery through Data Collaboration *Sponsored by* SevenBridges
Brandi Davis-Dusenbery, PhD, CEO, Seven Bridges

1:10 Luncheon Presentation II *(Sponsorship Opportunity Available)*

1:40 Session Break

PHARMA PERSPECTIVES: ADOPTING FAIR

1:50 Chairperson's Remarks
Helena Deus, PhD, Technology Research Director, Elsevier Labs, Elsevier, Inc.

1:55 KEYNOTE PRESENTATION: From Finding to Exploiting FAIR Data
Tom Plasterer, PhD, Semantic Technologies Lead, Science & Enabling Units IT, AstraZeneca Pharmaceuticals, Inc.
Much effort with the FAIR data community has focused on dataset catalogues, a prerequisite towards Finding FAIR data. But once discovered, what can we do with FAIR datasets? At AZ/Medimmune we are building an internal and external FAIR data ecosystem that can provide a loosely-coupled knowledge graph; an environment for initiating complex analytics and recording key insights; a human and machine agnostic data science playground for meaningful collaboration and knowledge extension to drive novel discovery and informed decision making. Both experts and novices should participate and derive value from the FAIR ecosystem.

2:25 Building a Unified Data Model
Roman Affentranger, PhD, Head, Small Molecule Discovery Workflows, Roche Pharma Research and Early Development Informatics, Roche Innovation Center Basel, F. Hoffmann-La Roche Ltd.
The Unified Data Model (UDM) is a common effort of vendors and life science organizations to create a well-defined data format for exchange of information about compound synthesis and their biological testing. Run under the umbrella of the Pistoia Alliance, the project released the first open and publicly available version of the Unified Data Model (UDM) in June 2018 and this saw a significant step in the ability to store and exchange information about compound synthesis and their biological testing. Without this common language and structure to describe experiments, data integration has been limited and a significant part of published data has not been readily available for processing or analysis. The first public release of UDM was closely followed by an enhanced version 5.0 Brooklyn, including numerous extensions and it is expected that the model will continue to be improved as demand dictates working with the Pistoia FAIR data implementation by industry community.

2:55 Sponsored Presentation *(Opportunity Available)*

3:25 Refreshment Break in the Exhibit Hall with Poster Viewing

BIO-IT WORLD FAIR DATA HACKATHON

4:00 Introduction to FAIR Data Hackathon

Ben Busby, PhD, Lead, Bioinformatics Training, National Center for Biotechnology Information (NCBI)

Over the past two days, teams have been working hard to evaluate and improve the FAIRness of data sets, tools, and pipelines. Before the teams present their results NIH data hackathon coordinator, Allissa Dillman will introduce us to FAIR data hackathons and what our teams have been up to for the past 2 days.

4:15 Hackathon Report Outs

During the FAIR Data Hackathon, which will take place April 15-16, project teams will work on various data sets with two goals in mind. The first task is to evaluate the FAIRness of a given data set, comparing it to FAIR principles. Next they will work on various modifications of the data set that would improve the FAIRness of the information. Representatives from the project teams will report out on the work that was done, and lessons learned from the hackathon.

5:00 Sponsored Presentation *(Opportunity Available)*

5:30 Best of Show Awards Reception in the Exhibit Hall with Poster Viewing

7:00 – 10:00 Bio-IT World After Hours @The Boston Children's Museum

THURSDAY, APRIL 18

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION & AWARDS PROGRAM

Please click here for details.

9:45 Coffee Break in the Exhibit Hall and Poster Competition Winners Announced

CHALLENGES AND OPPORTUNITIES IN METADATA

10:30 Chairperson's Remarks

10:40 Powering AI Innovation with the Emerging Internet of FAIR Data and Services

Michel Dumontier, PhD, Distinguished Professor, Institute of Data Science, Maastricht University

The rapid and worldwide endorsement and adoption of the FAIR (Findable, Accessible, Interoperable, Reusable) principles is contributing to the establishment of a new Internet of FAIR Data and Services. This emerging network of knowledge and services offers new opportunities to power AI-based applications in a manner that is both scalable and responsible.

11:10 Making Fair Play NICE with Information Systems

Eric Neumann, PhD, Founder & CEO, AIDAKA LLC

Acceptance and implementation are critical for FAIR to attain its objectives. This means that existing systems, both academic and industrial, should be able to adopt and benefit from FAIR principles without the need to perform expensive, time-consuming, complex system integration or re-development. In order to do this, an additional set of principles is recommended here, with the associated label NICE: Noninvasive, Integrable, Cost-Effective, and Extensible. Their utility and implementation will be discussed in this talk.

11:40 Sponsored Presentation *(Opportunity Available)*

12:10 pm Session Break

12:20 Luncheon Presentation *(Sponsorship Opportunity Available)* **or Enjoy Lunch on Your Own**

1:20 Dessert Refreshment Break in the Exhibit Hall with Poster Viewing

DATA STEWARDSHIP TO PROMOTE FAIRNESS

1:55 Chairperson's Remarks

Eric Neumann, PhD, Founder & CEO, AIDAKA LLC

2:00 Using the BioCompute Framework for FAIR Communication of Data Provenance

Elaine Thompson, PhD, Senior Staff Fellow, CBER, FDA

The BioCompute Framework is designed for communicating high-throughput sequencing (HTS) computations and analyses. It provides a FAIR method for exchanging data provenance, workflows, or pipelines in a JSON structure. BioCompute Objects can facilitate communication between scientists, researchers, and regulatory agencies including FDA. BioCompute is described in a Standard Trial Use document available at Open Science Foundation (OSF) and will be published by IEEE.

2:30 FAIR as a Working Principle for Cancer Genomic Data

Ian Fore, PhD, Senior Biomedical Informatics Program Manager, Center for Biomedical Informatics and Information Technology, National Cancer Institute

Working with the National Center for Biotechnology Information the National Cancer Institute uses the Sequence Data Delivery Pilot (SDDP) to store data "as is" from multiple cancer genomic studies. Short of the full harmonization employed in its Genomic Data Commons the NCI uses the FAIR principles as a yardstick for making SDDP data usable by the cancer genomics community.

3:00 Fostering Autonomous and Inclusive Research

Brian M. Bot, Principal Scientist, Outreach and Strategic Development, Sage Bionetworks

The emergence of digital platforms and the ubiquity of smart devices are providing biomedical researchers with an unprecedented ability to capture fine-grained information on research participants. But just because we have the ability to collect these data, does that mean we should? And if we do collect them, how should they be shared and/or governed? We will discuss emerging opportunities and risks in an increasingly decentralized biomedical research ecosystem.

3:20 Data Stewardship for Single-Cell Genomics

Eric Weitz, Senior Software Engineer, Data Sciences Platform, Broad Institute of MIT and Harvard

Single-cell genomics assays can measure gene expression in thousands of cells, simultaneously. In order for such data to be useful for biomedical researchers and developers, it must be findable, accessible, interoperable, and reusable. This presentation will discuss implementation of those FAIR principles for single-cell genomics in the Human Cell Atlas, the Data Sciences Platform at Broad Institute, and the Single Cell Portal.

3:40 A Journey through the Data Commons Architecture

Tom Quaiser, PhD, Roche Pharmaceuticals

Over the last couple of years, we at early research in Roche have been building up a new data architecture - the pRED Data Commons. Main ingredient to this architecture is modularity and FAIRness of data. In this talk we will take you on a journey throught the components of the pRED Data Commons and demonstrate the benefits of such an architecture.

4:00 Conference Adjourns

Clinical Research & Translational Informatics

Transforming Biological Data to Clinical Development

Advancing clinical trials and translational research requires transforming biological insights and raw research data into clean, actionable data using innovative techniques for its integration, visualization and analysis. The Clinical Research & Translational Informatics track explores new approaches to the integration, visualization, analysis, and application of biological and clinical trial data, including machine learning, artificial intelligence, big data analytics, and additional technologies with case studies from across pharma and academia.

TUESDAY, APRIL 16

7:00 am Workshop Registration Open and Morning Coffee

8:00 – 11:30 Recommended Morning Pre-Conference Workshops*

12:30 – 4:00 pm Recommended Afternoon Pre-Conference Workshops*

** Separate registration required. Please click here for details.*

2:00 – 6:30 Main Conference Registration Open

4:00 PLENARY KEYNOTE SESSION
Please click here for details.

5:00 – 7:00 Welcome Reception in the Exhibit Hall with Poster Viewing

WEDNESDAY, APRIL 17

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION
Please click here for details.

9:45 Coffee Break in the Exhibit Hall with Poster Viewing

DATA-DRIVEN DRUG DEVELOPMENT

10:50 Chairperson's Remarks

11:00 Digital Health and Big Data for Drug Development
Ray Liu, PhD, Senior Director & Head, Statistical Innovation & Consultation, Takeda

Novel digital technology allows study subjects to be assessed with new metrics, monitored remotely and continuously, and deep phenotyped to reveal new patterns. Coupled with Big Data, digital technology has great potential to make the drug more efficient and fulfill the promise of personalized medicine. The presentation is introductory in nature to help researchers understand the status of digital technology implementation in clinical trials. Challenges and opportunities for analytical development will also be discussed.

11:30 How One Bold Data Hub Project Can Inspire an R&D Organization
Krista McKee, Director, Data and Analytics, Takeda Data Science Institute

Takeda's R&D Data Hub was established to maximize the value of data by providing better access and better means to aggregate and analyze data efficiently. With its Platypus project, a winner of last year's Bio-IT World Best Practices Awards, Takeda aggressively and successfully pursued the Data Hub vision for a specific set of users. Along the way, multiple R&D functions were inspired to pursue more data-driven futures, enabled by the R&D Data Hub. From Clinical Science to Pharmacovigilance to Translational Research, this presentation will focus on the Data Hub projects that emerged from Platypus and their impact on the organization. Specific projects include pursuing cross-portfolio, program-level analytics on clinical safety data; piloting the utilization of machine learning algorithms/predictive analytics to monitor adverse event risk for an ongoing clinical trial; and igniting efforts within translational research to more broadly and systematically pursue data to inform and influence program benchmarking and decision-making.

12:00 pm Presentation to be Announced
Sponsored by PerkinElmer For the Better
Speaker to be Announced, PerkinElmer

How can medical monitors be sure they do not miss another safety signal? Signals Medical Review: Innovations in Clinical Analytics from PerkinElmer. Topics to be discussed include solution overview & demo, innovation spotlight, and customer success

12:15 Sponsored Presentation *(Opportunity Available)*

12:30 Session Break

12:40 Luncheon Presentation I to be Announced
Sponsored by Deloitte. ConvergeHEALTH

1:10 Luncheon Presentation II *(Sponsorship Opportunity Available)*

1:40 Session Break

LEVERAGING REAL WORLD DATA

1:50 Chairperson's Remarks
Lynn DiFinizio, Director, Clinical Data Sciences, Alkermes

1:55 Use of Real World Data for Evidence Generation through ML & AI
Farhan (CJ) Hameed, MD, MS, Senior Director, Global Real World Evidence Center of Excellence, Patient & Health Impact, Pfizer, Inc.

There is a growing regulatory application of RWE beyond safety and with a particular interest in using RWE to bridge the evidentiary gap between regulators, HTAs and payers enabled an increase in availability of real world data from traditional claims and EHR data sources to patient generated data from mobile wearables/sensor devices and genomic data facilitated by advanced analytics such as AI, ML and NLP, for an end to end drug development across products life cycle.

2:15 Machine Learning/Deep Learning Applications in RWE
Xiaoying Wu, MD, MS, Director, RWE IT CoE & Medical Informatics, Data Sciences, Janssen IT, Johnson & Johnson

With massive computing power resources at one's fingertips, Deep Learning finally became a reality in understanding complex patterns in patient journey: how they have been diagnosed, how they have been treated and how disease progressed. Leveraging cloud-based AI solutions, we can apply Deep Learning to Electronic Health Record and reveal hidden patterns in patient journey and better understanding the dynamics in the real-world setting. In this talk, we will be discussing technology enablers with DL applications in RWE.

2:35 Transforming Use of Real World Data Analytics
Minnie Chou, Director, IT, Amgen, Inc.

2:55 Sponsored Presentation *(Opportunity Available)*

3:25 Refreshment Break in the Exhibit Hall with Poster Viewing

ANALYTIC AND VISUALIZATION TOOLS FOR IMPROVED DATA INSIGHTS

4:00 CO-PRESENTATION: Right Data, Right Role, Right Time: Creating a Clinical Data Review Infrastructure

Lynn DiFinizio, Director, Clinical Data Sciences, Alkermes

Valerie Smith, Director, Information Technology, Alkermes

Alkermes has envisioned, designed, and is building a centralized Clinical Data Review infrastructure to promote data accessibility, transparency, and data insights. Focusing first on clinical data review and analysis processes, a scalable cloud-based data infrastructure along with several fit-for-purpose analytic and visualization tools offer reviewers intuitive options and confidence in their clinical data/review, whether it be for medical monitoring, risk-based data review/trending, or other custom visualization and reporting of both clinical and operational data.

4:30 Co-Presentation: Addressing High Performance Analytics Needs with the RSVP Platform

Satish J. Murthy, Solutions Architect, Janssen R&D IT

Paulo Bargo, Scientific Director, Statistics and Decision Sciences, Janssen R&D

The use of R for statistical computing is growing quickly among statisticians in Janssen Research & Development. They need an environment where they can collaborate in real time with colleagues across the world, run simulations with High Performance Computing (HPC), and deploy Shiny Applications to share their analyses. The Janssen R&D IT team developed and implemented the R as a Service for Visualization and Processing (RSVP) platform which combines Rstudio Server, Rshiny, cloud-bursted HPC, and Rconnect to address the challenges that Janssen scientists presented them with. This talk will present the design and architecture of RSVP from the IT side, and present a use case from the R&D side of an application that runs on the platform.

5:00 Sponsored Presentation *(Opportunity Available)*

5:30 Best of Show Awards Reception in the Exhibit Hall with Poster Viewing

7:00 – 10:00 Bio-IT World After Hours @The Boston Children's Museum

THURSDAY, APRIL 18

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION & AWARDS PROGRAM

Please click here for details.

9:45 Coffee Break in the Exhibit Hall and Poster Competition Winners Announced

IMPLEMENTING INNOVATIVE CLINICAL TRIAL AND PROJECT DESIGNS

10:30 Chairperson's Remarks

10:40 CO-PRESENTATION: Implementation of Complex Innovative Designs (CID) at Janssen

Raj Malathker, Manager, Quantitative Sciences IT, Janssen Pharmaceuticals R&D

Vlad Dragalin, PhD, Vice President & Scientific Fellow, Global Quantitative Sciences, Janssen Pharmaceuticals R&D

Both the 21st Century Cures Act and the PDUFA VI legislations call for wider use and acceptance of complex innovative clinical trial designs with the goal of streamlining drug development and bringing needed new medicines to patients in a more timely and efficient manner. We are the first PhRMA company to build an in-house platform, aptly named ACTIVE (Adaptive Clinical Trial's Interactive Virtual Environment), for efficient implementation of such complex innovative designs.

11:10 Effectively Complete Your Projects

Gurpreet Kanwar, MBA, PMP, Senior Project Manager, NAV CANADA

Most organizations say they have too many projects on the go and are not able to manage with backlog still growing. They want to achieve a high throughput of successful projects, however many are unable or unwilling to allocate an appropriate level of resourcing to approved initiatives. Methodologies to execute projects are not consistent and lacking standard processes. There is a need to manage project delivery expectations, satisfaction of business stakeholders and balance the demand to help them achieve their strategic goal.

11:40 Sponsored Presentation *(Opportunity Available)*

12:10 pm Session Break

12:20 Luncheon Presentation *(Sponsorship Opportunity Available)* **or Enjoy Lunch on Your Own**

1:20 Dessert Refreshment Break in the Exhibit Hall with Poster Viewing

BLOCKCHAIN FOR CLINICAL TRIALS

1:55 Chairperson's Remarks

Jay Bergeron, Director, Translational Research Business Technologies, Pfizer

2:00 CASE STUDY: Cross-Industry Collaboration Evaluating How Blockchain Can Transform the Pharmaceutical and Healthcare Industry, Part of Emerging Trends & Technology PhUSE Workgroup

Disa Lee Choun, Director Head of Innovation, Global Clinical Sciences & Operations, UCB

Adama Ibrahim, Associate Director, Clinical Operations, Biogen

This presentation will cover an understanding of the landscape in the pharma and healthcare settings, explore the areas where blockchain could be used, and present two detailed used cases (a. Drug Supply Chain using Smart Contracts; b. Patient Data Access/ Transparency) to support future development and implementation for proof of concept.

3:00 Applying a Digital Rights Blockchain to Patient Data Exchange: Simulating Patient Trial Matching with the Bitmark Blockchain

Jay Bergeron, Director, Translational Research Business Technologies, Pfizer

The use of blockchains to enable complicated multiparty processes, pertinent to many patient use cases, generally requires blockchain customization or supplemental applications. A multiparty clinical trial matching simulation was implemented using only the "Bitmark" digital rights blockchain. The simulation's development inspired the design of other blockchain applications based on the digital rights model, including biomarker data management and processing.

3:30 Securing Clinical Trial and Biological Experiment Data with the Blockchain

R. R. Brooks, PhD, Professor of Electrical and Computer Engineering, Clemson University

A bio-statistician survey found 31% of respondents active in medical research had knowingly committed fraud. The FDA mandates an inviolable audit trail, but when there are large financial stakes it is hard to believe this data will remain unchanged. One approach is to secure this data using the blockchain, but blockchain discussions maintain that data is globally available and transparent. This is not desirable for HIPAA or proprietary information. This talk explains how these issues are addressed by a prototype developed by Clemson University, University of Tennessee Chattanooga and the Medical University of South Carolina. We specifically address the differences between blockchain hype and reality.

4:00 Conference Adjourns

Data Visualization & Exploration Tools

Omics, Drug Discovery, and Clinical Development

TRACK 8

With a sharp increase in the volume and complexity of big data sets for research and drug discovery labs, data visualization is needed to clearly express the complex patterns. It is more important than ever to develop data visualization and exploration tools alongside the rest of the analytics, as opposed to later in the game. The Data Visualization & Exploration Tools track will address ways to not only develop, design, and implement visualization tools in genomics, drug discovery, clinical development, and translational research, but also address real-world case studies where these tools have been successfully used.

TUESDAY, APRIL 16

7:00 am Workshop Registration Open and Morning Coffee

8:00 – 11:30 Recommended Morning Pre-Conference Workshops*
W2. Data Visualization to Accelerate Biological Discovery

12:30 – 4:00 pm Recommended Afternoon Pre-Conference Workshops*
W9. Research Project Management
** Separate registration required. Please click here for details.*

2:00 – 6:30 Main Conference Registration Open

4:00 PLENARY KEYNOTE SESSION
Please click here for details.

5:00 – 7:00 Welcome Reception in the Exhibit Hall with Poster Viewing

WEDNESDAY, APRIL 17

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION
Please click here for details.

9:45 Coffee Break in the Exhibit Hall with Poster Viewing

LEVERAGING MACHINE LEARNING FOR VISUALIZATION

10:50 Chairperson's Remarks

11:00 Data-Driven Healthcare: Visual Analytics for Exploration and Prediction of Clinical Data
Adam Perer, PhD, Assistant Research Professor, School of Computer Science, Human-Computer Interaction Institute, Carnegie Mellon University

Healthcare institutions are now recording more electronic health data about patients than ever before. Many hope that if researchers tap into this real world observational data, the collective experience of the healthcare system can be leveraged to unearth insights to improve the quality of care. My research focuses on building interactive visual systems that leverage machine learning so clinicians and researchers can derive such insights.

11:30 Interactive Concept Learning for Visual Exploration of Epigenetic Patterns
Fritz Lekschas, PhD Candidate, Hanspeter Pfister Lab, Computer Science, Harvard University

Epigenetic datasets contain rich sets of patterns but searching and exploring nonstandard patterns is often time consuming and visual feedback is needed for verification of the results. I am going to present Peax, a new web-based tool for interactively training a classifier that learns your notion of interestingness and operates on deep learning-based unsupervised featurizations of the epigenetic datasets.

12:00 pm Sponsored Presentation *(Opportunity Available)*

12:30 Session Break

12:40 Luncheon Presentation *(Sponsorship Opportunity Available)* **or Enjoy Lunch on Your Own**

1:40 Session Break

INTERACTING WITH MULTI-OMIC DATA

1:50 Chairperson's Remarks
Hector Corrada Bravo, PhD, Assistant Professor, Center for Bioinformatics and Computational Biology, Department of Computer Science, University of Maryland, College Park

1:55 Computational Steering of Interactive Exploratory Analysis of Genomics Data
Hector Corrada Bravo, PhD, Assistant Professor, Center for Bioinformatics and Computational Biology, Department of Computer Science, University of Maryland, College Park

Interactive visual analysis integrated with computational analyses has gained popularity in genomics. We have previously built interactive analysis systems that are efficient and effective for exploratory analyses of large datasets arranged over richly structured features. Here, we discuss the next generation of tools where tighter integration between visualization and computation is used to guide and steer data analysts exploration based on the results of computations of interest.

2:25 MERmaid: A WebGL-Based Tool for Exploring Spatially Resolved Single-Cell Transcriptomics Data
Jean Fan, PhD, Postdoctoral Fellow, Chemistry and Chemical Biology, Harvard University

Recent advancements in highly multiplexed spatially-resolved single-cell gene expression measurements demand scalable computational tools to assist in data exploration and hypothesis-generation. We present MERmaid, an open-source visualization tool built on WebGL, that provides a rich interface for rapid exploration of spatially-resolved transcriptomics data. We apply MERmaid to visualize cell-type heterogeneity in tissues as well as intra-cellular heterogeneity in mRNA localization in MERFISH data. MERmaid is available online at https://jef.works/MERmaid/.

2:55 Sponsored Presentation *(Opportunity Available)*

3:25 Refreshment Break in the Exhibit Hall with Poster Viewing

CLINICAL BIOMARKER VISUALIZATIONS FOR DISCOVERY

4:00 FEATURED PRESENTATION: Expanding Access to Dynamic Clinical Biomarker Visualizations: Automation, Integration and Exploration of Data Lakes
Philip Ross, PhD, Head of Translational Bioinformatics Data Science, Translational Medicine, BMS

With biomarker samples from thousands of patients across multiple indications, how do we detect meaningful clinical biomarker results in a reasonable timeframe and at reasonable levels of effort? Dynamic visualizations with up-to-date data provide evolving insights. We are automating the integration of clinical and biomarker results in data lakes and leveraging dynamic visualizations to give the best possible access and exploration of emerging clinical biomarker data signals and trends.

4:30 Universal Spotfire Template (UniSpoT) for Clinical Biomarker Discovery

Sittichoke Saisanit, Principal Scientist, Roche Innovation Center New York

UniSpoT is the Roche pRED standardized visual analytics platform for clinical biomarker data. Enabled by the underlying BRAVE data process, it addresses the increasing and unmet business need for near real-time access to biomarker data, integrated with clinical data for exploratory analysis. It has been used for early clinical studies which have open-label design (e.g. phase 1b). Using UniSpoT, scientists can gain earlier and better understanding of biology, generate hypothesis, improve biomarker strategy and quality of data collection.

5:00 Sponsored Presentation *(Opportunity Available)*

5:30 Best of Show Awards Reception in the Exhibit Hall with Poster Viewing

7:00 – 10:00 Bio-IT World After Hours @The Boston Children's Museum

THURSDAY, APRIL 18

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION & AWARDS PROGRAM

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9:45 Coffee Break in the Exhibit Hall and Poster Competition Winners Announced

PRECISION ONCOLOGY DATASETS

10:30 Chairperson's Remarks

10:40 Longitudinal and Context Visualization for Precision Oncology

Jeremy Goecks, PhD, Assistant Professor of Biomedical Engineering and Computational Biology, Oregon Health and Science University

The goal of precision oncology is to find effective treatments for each patient's cancer based its molecular profile. Visualization plays a key role in precision oncology, helping to understand and integrate longitudinal and complex data analyses and then communicate results to physicians, patients, and other stakeholders. We will discuss our work applying visualization for precision oncology and identify opportunities and challenges for visualization in precision oncology going forward.

11:10 Sharing and Visualizing Cancer Genomics Datasets Using cBioPortal

Carlos Rios, PhD, Senior Research Investigator, Computational Genomics - Translational Medicine, Bristol-Myers Squibb

BMS has been using cBioPortal for visualizing cancer genomics datasets since early 2016, supported by The Hyve, an open source bioinformatics company based in The Netherlands. The cBioPortal server runs on Amazon AWS and is tied to the company's Active Directory for authentication and uses Keycloak for authorization. Data can be loaded through a pipeline that takes input files from Amazon S3. For BMS, cBioPortal was extended with support for rich metadata and canvasXpress integration.

11:40 Sponsored Presentation *(Opportunity Available)*

12:10 pm Session Break

12:20 Luncheon Presentation *(Sponsorship Opportunity Available)* **or Enjoy Lunch on Your Own**

1:20 Dessert Refreshment Break in the Exhibit Hall with Poster Viewing

DISEASE-AGNOSTIC STRATEGIES TO IMPROVE YOUR VISUALIZATION

1:55 Chairperson's Remarks

Baohong Zhang, PhD, Director of Genome Informatics, Translational Biology, Biogen

2:00 Creating Effective Visualizations – Design and Choreography for the Chaos of Data

Martin Krzywinski, Staff Scientist, Genome Sciences Centre, BC Cancer Research Centre

The process of design, which is a kind of choreography for the page, can be of great help in assembling individual data visualizations into a cohesive explanation across many levels of detail. In the same way that visualizations are a way to organize data, design is a way to organize visualizations. I will share with you my experiences in combining science, visualization and design to create explanations, promote engagement, inspire imagination and, where possible, provide visual support in the often vexing process of research.

2:30 Big Data to Insights Visually

Baohong Zhang, PhD, Director of Genome Informatics, Translational Biology, Biogen

How to utilize the most advanced JavaScript visualization tool kits, such as D3.js, canvasXpress.js and canvasDesigner.js to empower everyday scientists to extract biological insights from ever growing data sets.

3:00 CanvasXpress: An R-Library Data Visualization for Reproducible Research

Isaac M. Neuhaus, PhD, Director, Computational Genomics, BMS

CanvasXpress is a standalone JavaScript library used for visualization of genomics and non-genomics data sets. It has a user-friendly and unobtrusive interface to allow users to explore data sets and customize their visualizations. It also has a sophisticated mechanism to track all user interactions and modifications, which makes it ideal for use in reproducible research. More information can be found at https://canvasxpress.org.

3:30 Interactive Visualization of Person-Generated Health Data for Precision Health: Challenges & Possibilities

Arlene E. Chung, MD, MHA, MMCi, Associate Director of Health & Clinical Informatics, University of North Carolina School of Medicine; Lead Informatics Physician for Patient Engagement, UNC Health Care

While there is much interest in remote monitoring using person-generated health data (PGHD) from wearables and other data streams, transforming these data into meaningful and actionable insights for precision health is an open challenge as heterogeneity, missingness, and sparsity are inherent within these data. This presentation focuses on how interactive data visualization approaches could allow clinicians and patients to better understand the impact of lifestyle on symptoms and health outcomes.

4:00 Conference Adjourns

Blockchain in Pharma, R&D, and Healthcare

Empowering the Networking Ecosystem

Blockchain is becoming increasingly adopted to address the perennial networking challenges of visibility, integrity, security, and speed for data management in pharma, R&D, and healthcare. Innovative personalized therapies are driving this shift of proprietary data-driven life sciences supply chains, from basic research to R&D to clinical trials to manufacturing to patient. During the Inaugural Blockchain in Pharma, R&D, and Healthcare track, early adopters share their experiences on how this tool is empowering their management of end-to-end life science networking ecosystems.

TUESDAY, APRIL 16

7:00 am Workshop Registration Open and Morning Coffee

8:00 – 11:30 Recommended Morning Pre-Conference Workshops*
W7. Blockchain 101

12:30 – 4:00 pm Recommended Afternoon Pre-Conference Workshops*
W12. Data Science Driving Better Informed Decisions

** Separate registration required. Please click here for details.*

2:00 – 6:30 Main Conference Registration Open

4:00 PLENARY KEYNOTE SESSION
Please click here for details.

5:00 – 7:00 Welcome Reception in the Exhibit Hall with Poster Viewing

WEDNESDAY, APRIL 17

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION
Please click here for details.

9:45 Coffee Break in the Exhibit Hall with Poster Viewing

BUSINESS CASE FOR BLOCKCHAIN

10:50 Chairperson's Remarks

11:00 Business Case for Blockchain in Pharma
Basker Gummadi, MS, PMP, PgMP, Digital Innovation Deputy Director, Bayer

11:30 Presentation to be Announced

12:00 pm Sponsored Presentation *(Opportunity Available)*

12:30 Session Break

12:40 Luncheon Presentation *(Sponsorship Opportunity Available)* **or Enjoy Lunch on Your Own**

1:40 Session Break

ENABLING PRODUCTIVITY

1:50 Chairperson's Remarks
Richard Shute, PhD, Project Manager & Consultant, The Pistoia Alliance

1:55 Blockchain Technology in Preclinical R&D
Richard Shute, PhD, Project Manager & Consultant, The Pistoia Alliance

Blockchain technology has been identified as having high value in the preclinical R&D space with potential to help improve scientific data sharing. This presentation provides the background to this assertion and shows how distributed ledger technology could bring to life a vibrant, global scientific data sharing "market," enabling better R&D collaboration and leading to improved R&D effectiveness.

2:25 Documen: An Open Source Decentralized Application (dAPP) for Clinical Trials
Jean-Remy Behaeghel, Senior Director, Clinical, Quality and Manufacturing Systems, Vertex Pharmaceuticals

2:55 Sponsored Presentation *(Opportunity Available)*

3:25 Refreshment Break in the Exhibit Hall with Poster Viewing

ENABLING PRODUCTIVITY (CONT.)

4:00 Presentation to be Announced

4:30 PANEL DISCUSSION: Applying Blockchain in Pharma, R&D, and Healthcare

There is currently interest in applying blockchain to the life sciences community. Is it a solution? Potential applications include medical records, collection of clinical data/clinical trials, protection of intellectual property/contracts, integrity of supply chain – anywhere the data must be shared and secure. Panelists and evangelists from different sectors share their blockchain adoption, experiences and solutions.

Panelists:
Jean-Remy Behaeghel, Senior Director, Clinical, Quality and Manufacturing Systems, Vertex Pharmaceuticals
Adrian Gropper, MD, CTO, Patient Privacy Rights
Basker Gummadi, MS, PMP, PgMP, Digital Innovation Deputy Director, Bayer
Richard Shute, PhD, Project Manager & Consultant, The Pistoia Alliance

5:00 Sponsored Presentation *(Opportunity Available)*

5:30 Best of Show Awards Reception in the Exhibit Hall with Poster Viewing

7:00 – 10:00 Bio-IT World After Hours @The Boston Children's Museum

THURSDAY, APRIL 18

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION & AWARDS PROGRAM
Please click here for details.

9:45 Coffee Break in the Exhibit Hall and Poster Competition Winners Announced

GENOMICS AND PATIENT PRIVACY

10:30 Chairperson's Remarks

10:40 The Value of Personal Information in the Age of Machine Learning

Adrian Gropper, MD, CTO, Patient Privacy Rights

The HIE of One Trustee project uses public blockchains, standards, and open source software to enable patient-controlled independent health records that can last a lifetime. This reference implementation informs blockchain standards development for identity, credentials, and reputation with groups that include W3C, IEEE, Kantara, OpenID Foundation, and others. The homeless health record project with Emory in Atlanta is a case study.

11:10 Tapping into a New Era of Genomics by Jointly Building the World's Largest Precision Medicine Ecosystem

Axel Schumacher, PhD, Founder & CSO, Shivom

11:40 Sponsored Presentation *(Opportunity Available)*

12:10 pm Session Break

12:20 Luncheon Presentation *(Sponsorship Opportunity Available)* **or Enjoy Lunch on Your Own**

1:20 Dessert Refreshment Break in the Exhibit Hall with Poster Viewing

CLINICAL TRIALS

1:55 Chairperson's Remarks

Jay Bergeron, Director, Translational Research Business Technologies, Pfizer

2:00 CASE STUDY: Cross-Industry Collaboration Evaluating How Blockchain Can Transform the Pharmaceutical and Healthcare Industry, Part of Emerging Trends & Technology PhUSE Workgroup

Disa Lee Choun, Director Head of Innovation, Global Clinical Sciences & Operations, UCB

Adama Ibrahim, Associate Director, Clinical Operations, Biogen

This presentation will cover an understanding of the landscape in the pharma and healthcare settings, explore the areas where blockchain could be used, and present two detailed use cases (a. Drug Supply Chain using Smart Contracts; b. Patient Data Access/ Transparency) to support future development and implementation for proof of concept.

3:00 Applying a Digital Rights Blockchain to Patient Data Exchange: Simulating Patient Trial Matching with the Bitmark Blockchain

Jay Bergeron, Director, Translational Research Business Technologies, Pfizer

The use of blockchains to enable complicated multiparty processes, pertinent to many patient use cases, generally requires blockchain customization or supplemental applications. A multiparty clinical trial matching simulation was implemented using only the "Bitmark" digital rights blockchain. The simulation's development inspired the design of other blockchain applications based on the digital rights model, including biomarker data management and processing.

3:30 Securing Clinical Trial and Biological Experiment Data with the Blockchain

R. R. Brooks, PhD, Professor of Electrical and Computer Engineering, Clemson University

A bio-statistician survey found 31% of respondents active in medical research had knowingly committed fraud. The FDA mandates an inviolable audit trail, but when there are large financial stakes it is hard to believe this data will remain unchanged. One approach is to secure this data using the blockchain, but blockchain discussions maintain that data is globally available and transparent. This is not desirable for HIPAA or proprietary information. This talk explains how these issues are addressed by a prototype developed by Clemson University, University of Tennessee Chattanooga and the Medical University of South Carolina. We specifically address the differences between blockchain hype and reality.

4:00 Conference Adjourns

Pharmaceutical R&D Informatics

Strategic Initiatives in Collaboration, Data Science, and Technologies

There is no end in sight for the amount of data we can generate in pharmaceutical R&D – the amount of clinical, translational, genomic, and electronic health data we generate and collect necessitates effective strategies and infrastructure for managing, integrating, and analyzing these data for better decision making. As new tools and technologies emerge – from digital biomarkers to artificial intelligence – we must ensure that our data is not only of high quality, but also correct and consistent. The Pharmaceutical R&D Informatics track explores real-world projects and strategies for integrating and analyzing complex data sets that are driving R&D and precision medicine.

TUESDAY, APRIL 16

7:00 am Workshop Registration Open and Morning Coffee

8:00 – 11:30 Recommended Morning Pre-Conference Workshops*
W4. AI for Pharma

12:30 – 4:00 pm Recommended Afternoon Pre-Conference Workshops*
W10. Digital Biomarkers in Pharma R&D: Technical Challenges and Strategies for Advancing Personalized Medicine

** Separate registration required. Please click here for details.*

2:00 – 6:30 Main Conference Registration Open

4:00 PLENARY KEYNOTE SESSION
Please click here for details.

5:00 – 7:00 Welcome Reception in the Exhibit Hall with Poster Viewing

WEDNESDAY, APRIL 17

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION
Please click here for details.

9:45 Coffee Break in the Exhibit Hall with Poster Viewing

DIGITAL TRANSFORMATION OF PHARMA R&D

10:50 Chairperson's Remarks
Christopher Waller, PhD, Life Sciences, EPAM Systems, Inc.

11:00 The Foundation for the Digital Transformation of the Laboratory
Dana E. Vanderwall, PhD, Director, Biology & Preclinical IT, Discovery IT, Bristol-Myers Squibb Company
An intelligent laboratory – where data, methods, and disparate hardware and software components are completely inter-operable – can ensure data and its context and relationships are seamlessly captured, shared, integrated and ready for analytics to deliver knowledge and insights. This digital transformation requires basic foundational changes in mindset, informatics and data architectures. Doing so also enables more hardware and workflow automation, and drastically improves the integrity and quality of data feeding decisions.

11:30 Intelligent Lab Data Streaming
Ralph Haffner, Global Area Head, Research Informatics, Roche
Is there a way to 'real time' stream the relevant data from lab instruments into drug project decision platforms? It usually starts with a vision and first steps. That's where we in Roche Discovery Informatics are. Good concepts and promising approaches, a couple of PoCs. Some evolutionary some more revolutionary. I would like to expose our model, show first implementations and invite you to join in an open discussion to further explore this exciting and promising space.

12:00 pm A Cloud Based Approach for Automated SAR/SPR Analysis of Focused Compound Libraries
Sponsored by ChemAxon
Csaba Peltz, Product Owner of ChemAxon, Cloud Solutions, ChemAxon
This presentation demonstrates a process and the corresponding cloud based tools that make the work of data aggregation and analysis easy and seamless for all parties that collaborate in the hit-to-lead optimization efforts. Data coming from different sources can be made available for joint queries, while executing automated statistical methods on the results.

12:15 Talk Title to be Announced
Sponsored by Linguamatics
David Wilward, CTO, Linguamatics

12:30 Session Break

12:40 Luncheon Presentation I to be Announced
Sponsored by SINEQUA

1:10 Luncheon Presentation II to be Announced
Sponsored by ELSEVIER

1:40 Session Break

DIGITAL TRANSFORMATION OF PHARMA R&D (CONT.)

1:50 Chairperson's Remarks
Ralph Haffner, Global Area Head, Research Informatics, Roche

1:55 Accelerating Digital Transformation In R&D
Anastasia Christianson, Vice President, R&D Operations and Oncology IT, Janssen
Pharma R&D generates, collects, and analyzes myriad types of data – from laboratory, translational, and clinical to commercial. In order to strategically utilize this data, R&D departments must drive forward a digital transformation. This talk will discuss strategic and practical steps to make this a reality.

INTEGRATING AND ANALYZING DIFFERENT DATA TYPES IN A COMPLEX DATA LANDSCAPE

2:25 Building Structured Data at the Onset of Collection in Real World Evidence Generation – Lessons Learned from Biogen's Learning Health System for MS
Eunice Jung, Associate Director, Real World Evidence Strategy and Analytics, Medical Evidence, Research & Innovation, Biogen
Biogen's evidence-based LHS built for MS PATHS uses clinical terminology dictionaries to curate data which are used for real world evidence analytics. This case study will look at lessons learned from integrating disparate data types, importance of enhancing usability by cleaning and standardizing data, leveraging technology-enable approaches to curate diverse dataset and maximize completeness, and ensuring consistency in data values and data quality.

2:55 Organize, Optimize, and Measure Biologics R&D with Modern Software

Sponsored by Benchling

Sajith Wickramasekara, CEO and Co-Founder, Benchling

Scaling biologics infrastructure is an enormous challenge faced by R&D IT. Benchling is a biologics-native informatics platform used by over 100,000 scientists to configure biologics workflows and run day-to-day R&D. This presentation will highlight how Benchling has helped leading biopharma companies organize, optimize, and measure their biologics R&D.

3:10 Sponsored Presentation *(Opportunity Available)*

3:25 Refreshment Break in the Exhibit Hall with Poster Viewing

INTEGRATING AND ANALYZING DIFFERENT DATA TYPES IN A COMPLEX DATA LANDSCAPE (CONT.)

4:00 Biomarker Data Management Framework – Accomplishments and Challenges

Christina Lu, Director and Head of Data Management and Engineering, Development Sciences Informatics, Genentech (A member of the Roche Group)

Everyone wants to generate insights from their data. Where do you even start when data is not centrally available and is constantly evolving? Data needs to have the proper linkage information and metadata and be stored in a flexible way so it can be used for downstream analysis. This talk focuses on the work done to date with establishing a framework for exploratory biomarker data so it can be consumed for analysis.

4:30 Building/Testing Drug-Sensitivity Predictive Models to Support Translational Research

Bin Li, PhD, Director, Translational Bioinformatics, Computational Biology, Takeda

We developed and tested various machine learning methods to build drug-sensitivity predictive models utilizing genetic and genomic data, to support patient stratification, disease indication selection, mechanism of action study, as well as reverse translation efforts.

5:00 Leveraging an Informatics Platform to Derive Scientific Insights

Sponsored by ThermoFisher SCIENTIFIC

Marc Siladi, Product Manager, Data Analytics, Thermo Fisher Scientific

The discovery of a life transforming therapy requires the generation of large sums of data. Making sense of this data and determining what is vital to support a novel discovery is time consuming and requires collaboration. Thermo Scientific™ Platform for Science™ software utilizes powerful data visualization tools and provides collaboration and integration capabilities to drive scientific research.

5:15 Presentation to be Announced

Sponsored by PerkinElmer

Speaker to be Announced, PerkinElmer

Speeding clinical and biomarker insights with Signals Translational: Innovations in Translational Analytics from PerkinElmer. Topics to be discussed include solution overview & demo, innovation spotlight, and customer success.

5:30 Best of Show Awards Reception in the Exhibit Hall with Poster Viewing

7:00 – 10:00 Bio-IT World After Hours @The Boston Children's Museum

THURSDAY, APRIL 18

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION & AWARDS PROGRAM

Please click here for details.

9:45 Coffee Break in the Exhibit Hall and Poster Competition Winners Announced

DEVELOPING AND INTEGRATING DIGITAL BIOMARKERS

10:30 Chairperson's Remarks

10:40 Integrating Digital Biomarkers and Electronic Clinical Outcome Assessments (eCOA) in Clinical Trials

Tomasz Adamusiak, MD, PhD, Director of Medical Informatics, Digital Medicine & Translational Imaging, Pfizer

The mission of the Digital Medicine group and the Pfizer Innovation Research (PfIRe) Lab is to solve key business problems using dynamical measures and advanced-STEM platforms. Our goal is to utilize digital remote monitoring of patients' symptoms to develop and validate novel clinical endpoints for disease diagnosis and health state assessment. This talk will highlight the unique challenges digital endpoints have in terms of data consistency, quality, and fit for purpose, as well as explore ways to overcome those challenges.

11:10 Digital Disease Markers from Speech and Accelerometer Data

Vladimir Morozov, PhD, Bioinformatics Solutions Architect, Shire

Proliferation of wearable devices combined with advancements in machine learning enable development of digital disease markers. We present cases of developing biomarkers for ALS and Parkinson's from speech and accelerometer data. We show that deep neural networks ("deep learning") make it possible to construct markers from raw data without labor intensive signal analysis. The obtained biomarkers are competitive with hand-crafted ones.

11:40 Presentation to be Announced

Sponsored by accenture

12:10 pm Session Break

12:20 Luncheon Presentation I to be Announced

Sponsored by CAMBRIDGE SEMANTICS

12:50 Luncheon Presentation II: Supporting Scientific Experimentation from Design to Decide Using a Modern Informatics Approach

Sponsored by ACD/Labs

Andrew Anderson, Vice President, Innovation & Informatics Strategy, ACD/Labss

Many organizations are transitioning from human-initiated experiments, summarized in documents, to automation-initiated experiments, summarized in comprehensive digital formats. Such comprehensive digital characterization requires a variety of application, architecture, and data standards. This presentation will cover comprehensive digital representations of scientific experiments: from initial experimental design, planning, execution, and observation to final analysis – with an emphasis on high-throughput, parallel experimentation.

1:20 Dessert Refreshment Break in the Exhibit Hall with Poster Viewing

AI AND MACHINE LEARNING PHARMA R&D

1:55 Chairperson's Remarks

Bino John, PhD, Associate Director, AstraZeneca

2:00 FEATURED PRESENTATION: Application of Machine Learning and Artificial Intelligence as a Driver of Productivity in Drug Discovery & Development

Morten Sogaard, Vice President, Target Sciences & Technologies, External Sciences & Innovation, Worldwide R&D, Pfizer

This talk will provide an overview of the impact of AI on productivity on pharma with the focus on three areas – process engineering & automation, drug design and manufacturing, and target and biomarker discovery and validation, illustrated by specific examples.

2:30 Intersection of AI Techniques and Rare Disease Diagnosis

Margaret Bray, PhD, Senior Data Scientist, Alexion

A look into the latest AI techniques applied to the field of rare

disease diagnostics as well as a look at the limitation of current methodologies and areas for future growth.

3:00 Automated Compliance and Quality Checks

Etzard Stolte, PhD, Global Head Knowledge Management PTD, F. Hoffmann-La Roche

Machine learning technologies, like Natural Language Processing (NLP), have reached the maturity for automated quality controls of operational information, e.g. as compliance and quality supervision tools. Over the last years Pharma Technical Development at Roche has created a single front end for many business and validated systems, that uses a mixture of curation and supervised learning tools to increase compliance and reduce operational costs. This talk will present our learnings, as well as the limitations and opportunities we see for the future.

3:30 AI for Improving Drug Safety to Accelerate Drug Development

Bino John, PhD, Associate Director, AstraZeneca

Drug candidates that result from millions of dollars in investment frequently fail during clinical or preclinical testing phases due to safety concerns. Such safety related failures continue to pose a challenge to the industry. This talk will highlight some of the efforts at AstraZeneca that seek to use AI/ML approaches to minimize such clinical/preclinical failures.

4:00 Conference Adjourns

Cancer Informatics

Applying Computational Biology to Cancer Research & Care

The Cancer Informatics track explores the important technology and informatics trends and challenges of applying computational biology and clinical data to cancer research and care. Themes that will be covered in expert-led presentations include collaboration and network models, data access/management/integration strategies, visualization tools, and applications of biological interpretation to aid in research at the bench side or care at the bedside.

TUESDAY, APRIL 16

7:00 am Workshop Registration Open and Morning Coffee

8:00 – 11:30 Recommended Morning Pre-Conference Workshops*
W6. DNA Sequencing 101

12:30 – 4:00 pm Recommended Afternoon Pre-Conference Workshops*
W12. Data Science Driving Better Informed Decisions

** Separate registration required. Please click here for details.*

2:00 – 6:30 Main Conference Registration Open

4:00 PLENARY KEYNOTE SESSION
Please click here for details.

5:00 – 7:00 Welcome Reception in the Exhibit Hall with Poster Viewing

WEDNESDAY, APRIL 17

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION
Please click here for details.

9:45 Coffee Break in the Exhibit Hall with Poster Viewing

TOOLS THAT BEST UTILIZE DATA TO DRIVE CLINICAL DECISION MAKING AND BIOLOGICAL KNOWLEDGE

10:50 Chairperson's Remarks

11:00 Making Clinical Data Available to Researchers at the Princess Máxima Center for Pediatric Oncology with tranSMART and cBioPortal

Patrick Kemmeren, PhD, Principal Investigator, Princess Máxima Center for Pediatric Oncology

The Princess Máxima Center for Pediatric Oncology is the centralized pediatric oncology center for all children with cancer in the Netherlands since 2018. Attendees will learn about our new center, how to set up research IT infrastructure in a (inter)nationally oriented research hospital, without being limited by legacy software. Besides this, they will be informed on the latest developments on an important set of open source research IT software tools, including tranSMART, Glowing Bear and cBioPortal.

11:30 CO-PRESENTATION: Building a Standards-Based Clinical Data Resource for Cancer: Challenges, Goals, and Progress

John Methot, Director, Health Informatics Architecture, Dana-Farber Cancer Institute

Eva Lepisto, Data Services Team Lead, Dana-Farber Cancer Institute

Oncology's pioneering role in precision medicine has led to routine tumor sequencing; Dana-Farber has clinically sequenced more than 30,000 tumors. However, the incompleteness and inconsistency of clinical data from EHRs and other sources present significant challenges to building the patient-specific diagnosis, treatment and outcome data that are required to discover correlates to genomic data that inform diagnosis, prognosis, and personalized treatment. At DFCI, we are striving to improve the quality and coverage of clinical data decision support.

12:00 pm Presentation to be Announced

Sponsored by discngine

12:15 Presentation to be Announced

Sponsored by Copyright Clearance Center

12:30 Session Break

12:40 Luncheon Presentation I to be Announced

Sponsored by idbs

1:10 Luncheon Presentation II *(Sponsorship Opportunity Available)*

1:40 Session Break

REVOLUTIONIZING DRUG DEVELOPMENT WITH NEW DISEASE MODELS AND SIMULATION METHODS: CASE STUDIES OF COLLABORATIVE GLOBAL EFFORTS

1:50 PANEL DISCUSSION: Revolutionizing Drug Development with New Disease Models and Simulation Methods: Case Studies of Collaborative Global Efforts

Chairperson and Moderator:

Anil Srivastava, President, Open Health Systems Laboratory

Panelists:

Jeffrey Buchsbaum, MD, PhD, AM, Medical Officer and Program Director, Radiation Research Program, Division of Cancer Treatment and Diagnosis, National Cancer Institute/NIH

Rajendra Joshi, PhD, Associate Director and HOD Bioinformatics Group, Centre for Development of Advanced Computing (C-DAC), Pune University Campus

Tonglei Li, PhD, Allen Chao Chair and Professor of Department of Industrial and Physical Pharmacy, College of Pharmacy, Purdue University

2:55 Sponsored Presentation *(Opportunity Available)*

3:25 Refreshment Break in the Exhibit Hall with Poster Viewing

BIOMARKER DETERMINATION IN A DIAGNOSTIC CONTEXT: ISSUES AND CHALLENGES WITH IDENTIFICATION, VALIDATION, DEVELOPMENT, AND IMPLEMENTATION OF TOOLS FOR CANCER

SCREENING, DIAGNOSIS, AND TREATMENT

4:00 PANEL DISCUSSION: The Difference between Biomarkers and Diagnostics: It's Bigger Than You Think

Moderator:

Michael N. Liebman, PhD, IPQ Analytics, LLC and Strategic Medicine, Inc.

Panelists:

Michael Montgomery, MD, Global Executive Director, Incyte Corporation

Jonathan Morris, MD, Vice President, Provider Solutions; Chief Medical Informatics Officer, Real World Insights, IQVIA

Jun Zhu, PhD, Professor, Genetics and Genomic Sciences, Icahn School of Medicine at Mount Sinai

Biomarkers are used to evaluate cancer risk, detect end stage cancer and suggest optimal therapy for specific patients. Recent advances in -omics research continue to enable researchers to classify molecular fingerprints of specific cancers. Discovery and development of new cancer markers remains a major research focus to improve screening, diagnosis, and treatment but is hampered by the limited knowledge of the details of disease progression. This challenges the ability to identify markers that may be causal rather than correlative and impacts their use as true diagnostics. By example, literature analysis of 250,000 papers listing biomarkers in cancer yield less than 100 FDA approved diagnostics. Every experiment yields a biomarker; however, every experiment does not yield a diagnostic that can more accurately drive clinical action. How can we close this gap? It is critical to develop a better understanding of the disease process and how observations from genomics, proteomics, and metabolomics may impact that process in different ways. This interactive panel will explore experimental and analytic methods, issues and challenges impacting identification, validation, development and implementation in cancer, diagnosis and treatment.

5:00 Sponsored Presentation *(Opportunity Available)*

5:30 Best of Show Awards Reception in the Exhibit Hall with Poster Viewing

7:00 – 10:00 Bio-IT World After Hours @The Boston Children's Museum

THURSDAY, APRIL 18

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION & AWARDS PROGRAM

Please click here for details.

9:45 Coffee Break in the Exhibit Hall and Poster Competition Winners Announced

VISUALIZING PRECISION ONCOLOGY

10:30 Chairperson's Remarks

10:40 Longitudinal and Context Visualization for Precision Oncology

Jeremy Goecks, PhD, Assistant Professor of Biomedical Engineering and Computational Biology, Oregon Health and Science University

The goal of precision oncology is to find effective treatments for each patient's cancer based its molecular profile. Visualization plays a key role in precision oncology, helping to understand and integrate longitudinal and complex data analyses and then communicate results to physicians, patients, and other stakeholders. We will discuss our work applying visualization for precision oncology and identify opportunities and challenges for visualization in precision oncology going forward.

11:10 Sharing and Visualizing Cancer Genomics Datasets Using cBioPortal

Carlos Rios, PhD, Senior Research Investigator, Computational Genomics - Translational Medicine, Bristol-Myers Squibb

BMS has been using cBioPortal for visualizing cancer genomics datasets since early 2016, supported by The Hyve, an open source bioinformatics company based in the Netherlands. The cBioPortal server runs on Amazon AWS and is tied to the company's Active Directory for authentication and uses Keycloak for authorization. Data can be loaded through a pipeline that takes input files from Amazon S3. For BMS, cBioPortal was extended with support for rich metadata and canvasXpress integration.

11:40 Sponsored Presentation *(Opportunity Available)*

12:10 pm Session Break

12:20 Luncheon Presentation *(Sponsorship Opportunity Available)* **or Enjoy Lunch on Your Own**

1:20 Dessert Refreshment Break in the Exhibit Hall with Poster Viewing

METHODS AND MODELS TO BETTER UTILIZE DATA FOR RISK ASSESSMENT, DIAGNOSIS AND TREATMENT

1:55 Chairperson's Remarks

Yuval Itan, PhD, Assistant Professor, Department of Genetics and Genomic Sciences; Member, Charles Bronfman Institute for Personalized Medicine, Icahn School of Medicine at Mount Sinai

2:00 Pinpointing Transcript-Damaging Disease-Causing Variants as a Major Step towards RNA Therapeutics

Sahar Gelfman, PhD, Associate Research Scientist, Columbia University Medical Center

Since its publication in 2017, the Transcript-inferred Pathogenicity (TraP) model has become a major resource for genetic diagnostics, identifying pathogenic non-coding variants, and helping to change the common conception that pathogenic genetic variation is caused solely by coding mutations. TraP has been incorporated in diagnostic pipelines in tens of research institutes worldwide. TraP is also available as a website for single queries (www.trap-score.org), providing successful diagnosis of genetic disorders and affecting treatment decisions.

2:30 AI Assisted Rapid Clinical Whole Genome Sequencing for Critical Care

Ray Veeraraghavan, PhD, Director of IT & Informatics, Rady Children's Institute for Genomic Medicine

3:00 Deciphering the Complex Heterogeneity of Cancer

Patrice M. Milos, PhD, Co-Founder/President and CEO, Medley Genomics, Inc.

Medley Genomics provides a software platform that uses patent-pending algorithms and advanced data analytics to describe a patient's diverse tumor cell mixture. This enables creation of unique molecular diagnostic fingerprints for improving patient diagnosis, monitoring and treatment of cancer, and helps to improve novel oncology therapies and therapeutic combinations including individual cancer vaccine development.

3:30 Estimating Genotypic Heterogeneity Underlying Human Disease

Yuval Itan, PhD, Assistant Professor, Department of Genetics and Genomic Sciences; Member, Charles Bronfman Institute for Personalized Medicine, Icahn School of Medicine at Mount Sinai

Whole exome and whole genome sequencing provide hundreds of thousands of genetic variants per patient, of them only very few are pathogenic. Current computational methods are inefficient in differentiating pathogenic mutations from neutral genetic variants that are predicted to be damaging and cannot predict the functional outcome of mutations. We will present deep learning approaches and machine learning methods in the role of detecting pathogenic mutations. Visualization tools for better utilizing NGS data will be presented to understand human disease genomics.

4:00 Conference Adjourns

Cloud Computing

Applying Cloud for Expanding Applications

Cloud computing has become the platform enterprises turn to for their application analysis as well as data storage. Data-intensive life scientists from biological researchers to biopharmaceutical organizations realize this practicality and necessity. Thus, adoption has been greater than anyone expected and users continue to expand applications. Through case studies, the Cloud Computing track explores the rapid growth and progressive maturation of cloud as well as evolving provider and user experiences.

TUESDAY, APRIL 16

7:00 am Workshop Registration Open and Morning Coffee

8:00 – 11:30 Recommended Morning Pre-Conference Workshops*

12:30 – 4:00 pm Recommended Afternoon Pre-Conference Workshops*

** Separate registration required. Please click here for details.*

2:00 – 6:30 Main Conference Registration Open

4:00 PLENARY KEYNOTE SESSION
Please click here for details.

5:00 – 7:00 Welcome Reception in the Exhibit Hall with Poster Viewing

WEDNESDAY, APRIL 17

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION
Please click here for details.

9:45 Coffee Break in the Exhibit Hall with Poster Viewing

ADOPTING CLOUD

10:50 Chairperson's Remarks

11:00 CASE STUDY: Avoiding Storms: Our Journey to Using Cloud Platforms for Research

Dianne Pacheco, CISM, Information Security Officer, Information Technology, The Jackson Laboratory

Sandeep Namburi, MSc, Cloud Systems Analyst, Information Technology, The Jackson Laboratory

Like many organizations, our initial exploration of cloud services was uncoordinated. To move forward, we regrouped all stakeholders and established a common direction by developing a Cloud Charter. A Core Team responsible for architecture and technical decisions was formed. A Cloud Steering Committee with governance responsibilities was established. In seven months we transitioned from chaos to reproducible processes provisioning internal and external systems for research support.

11:30 CASE STUDY: Transforming M&A: Collaboration in the Cloud

Bridget Behringer, MBA, Head, R&D Mergers and Acquisitions IT, Science and Enabling Units IT, AstraZeneca

Ajit Acharya, MS, PMP, Project Delivery Lead, R&D Mergers and Acquisitions IT, Science and Enabling Units IT, AstraZeneca

In recent years, Mergers and Acquisitions (M&A) has become a key strategic driver for growth within the pharmaceutical industry. Implicit in all deals is the transaction of large volumes of regulated data, documents and intellectual property, all of which underpin the development lifecycle. Cloud computing enabled the M&A capability to be flexible, cost effective and regulatory-compliant.

12:00 pm Sponsored Presentation *(Opportunity Available)*

12:30 Session Break

12:40 Luncheon Presentation I: Analyzing Genomic Data at Scale with Google Cloud

Sponsored by Google Cloud

Jonathan Sheffi, Product Manager, Healthcare & Life Sciences, Google Cloud

Google Cloud enables scientists to change the way they perform research and collaborate with one another. This presentation will highlight how Google Cloud is accelerating life sciences research and finding new ways to innovate.

1:10 Luncheon Presentation II: Bringing Industrialization to the Biotech Revolution

Sponsored by Benchling

Sajith Wickramasekara, CEO and Co-Founder, Benchling

We're at the start of a biotech revolution comparable to the rise of the computer and even the industrial revolution. That said, biotech faces some key impediments: tools ill-suited for modern science, systems that lock away key R&D insights, and underdeveloped processes. In this talk, hear biotech leaders discuss how their organizations are managing this transformational shift.

1:40 Session Break

APPLYING CLOUD

1:50 Chairperson's Remarks

Bruce Kozuma, MSCS, PMP, CPIM, CSM, CPO, Principal Systems Analyst, Broad Information Technology Services, The Broad Institute of MIT and Harvard

1:55 CASE STUDY: Transforming R&D Productivity and Innovation Landscape through Cloud Computing

LiMing Shen, PhD, Director, Translational Informatics, R&D, Sanofi

David Deparday, MSc, Head, Solution Center, Information Technology Solutions, Sanofi

We started the journey of building an internal cloud-based computing platform a year ago and it has already made a significant business impact across R&D in enabling large-scale modeling and simulation in clinical trial models, quantitative system pharmacology models, PKPD analyses, AI/deep learning projects and in removing bottlenecks in NGS data storage and processing.

2:25 CASE STUDY: Processing, Analyzing, and Sharing One Million Genomes (and More) in the Cloud

Stacey Gabriel, PhD, Senior Director, Genomics Platform, The Broad Institute of MIT and Harvard

Eric Banks, PhD, Senior Director, Data Sciences Platform, The Broad Institute of MIT and Harvard

The Broad Institute has fully embraced a transition to public clouds to power its world-class genome center. In this talk, we describe the many lessons learned over this journey and how we're using the cloud to process and share over one million human genomes.

2:55 Presentation to be Announced

Sponsored by DELL EMC

3:10 Presentation to be Announced

Sponsored by Qumulo

3:25 Refreshment Break in the Exhibit Hall with Poster Viewing

APPLYING CLOUD (CONT.)

4:00 Building a Low-Cost Sample Tracking System with G Suite & Jira Cloud

Bruce Kozuma, MSCS, PMP, CPIM, CSM, CPO, Principal Systems Analyst, Broad Information Technology Services, The Broad Institute of MIT and Harvard

Current off-the-shelf technology allows for development of a low-cost, serverless sample tracking solution, using commonly used components (G Suite and Jira Cloud). Combined with Agile principles (e.g., minimum viable product, short cycle and iterative delivery) has resulted in a solution that is helping reduce cost of research at the Broad Institute of MIT and Harvard.

4:30 CASE STUDY: Successful Cloud Migration Strategies & Techniques

Lance Smith, Associate Director, IT, Celgene

Steve Sivak, HPC Engineer, IT, Celgene

The public cloud is going mainstream and most pharma/biotech have started moving select workloads. New workloads are easy to create in the cloud; the challenge has been what to do with the legacy software in our industry. We discuss various strategies to migrate HPC, database and other biotech applications, and some technologies to assist your organization during this phase. We'll also cover our lessons learned and overall recommendations.

5:00 Making Precision Medicine a Reality

Sponsored by IBM

Frank Lee, PhD, Global Industry Leader for Healthcare and Life Sciences, IBM Systems Chief Architect of High Performance Data & AI for Healthcare, IBM Storage CTO Office Member, IBM

Flexibility, security, scalability, speed, collaboration, and data management are key to advancing the future of precision medicine. Join this session to learn how visionary market leaders are revolutionizing their capabilities with a high-performance data and AI platform as a catalyst that supports data-driven research and accelerates breakthrough discoveries. Come discover how to bridge the future of healthcare now.

5:30 Best of Show Awards Reception in the Exhibit Hall with Poster Viewing

7:00 – 10:00 Bio-IT World After Hours @The Boston Children's Museum

THURSDAY, APRIL 18

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION & AWARDS PROGRAM

Please click here for details.

9:45 Coffee Break in the Exhibit Hall and Poster Competition Winners Announced

DATA SECURITY IN CLOUD

10:30 Chairperson's Remarks

10:40 Fog Computing Concept Model

Larry Feldman, PhD, Senior Security Engineer, G2, Inc.

Cisco estimated that by 2020 there will be over 50 billion interconnected, heterogeneous, smart devices that will require an adequate infrastructure to support them. Fog computing is the next new technology that offers a distributed and federated compute model, which provides low-latency computational resources, elastic capabilities, data analytics, and management.

11:10 FEATURED PRESENTATION: Cloud Migration: Experiences from a Large Complex Integrated Delivery Network: Options, Trade-Offs, and Early Experiences from a Value-Based Delivery System

John Mattison, MD, CMIO, Kaiser Permanente

11:40 Presentation to be Announced

Sponsored by idbs

11:55 Presentation to be Announced

Sponsored by OpenEye Scientific

12:10 pm Session Break

12:20 Luncheon Presentation I to be Announced

12:50 Luncheon Presentation II to be Announced

Sponsored by ARISTA

1:20 Dessert Refreshment Break in the Exhibit Hall with Poster Viewing

CONSULTANCIES AND COMPUTING: ASSESSMENTS, ORGANIZATIONAL CHALLENGES & TRENDS

1:55 Chairperson's Remarks

Chris Dwan, Senior Technologist and Independent Life Sciences Consultant

2:00 PANEL DISCUSSION: High Performance Consultancies

Moderator:

Chris Dwan, Senior Technologist and Independent Life Sciences Consultant

Panelists:

Tanya Cashorali, CEO, Founder, TCB Analytics

Aaron Gardner, Director of Technology, BioTeam, Inc. Eleanor Howe, PhD, Founder and CEO, Diamond Age Data Science

An organization must learn and understand the value of why, when and how to use a consultancy. Highly trained and skilled professional experts gather to discuss their role in leading and managing projects for organizations to help them achieve goals. They will discuss a variety of themes including the best kinds of projects to hire a consultancy for, the timeline of when an organization should hire a consultant vs. full time staff, and big challenges on the horizon. The session will feature short podium presentations, followed by a moderated Q&A panel with attendees. The topic of hiring a consulting company came up in the data science plenary keynote at Bio-IT 2018. We want to spend time at Bio-IT 2019 exploring this topic in finer detail.

3:20 KEYNOTE PRESENTATION: Trends from the Trenches 2019

Chris Dagdigian, Co-Founder and Senior Director, Infrastructure, BioTeam, Inc.

The "Trends from the Trenches" in its original "state of the state address" returns to Bio-IT! Since 2010, the "Trends from the Trenches" presentation, given by Chris Dagdigian, has been one of the most popular annual traditions on the Bio-IT Program. The intent of the talk is to deliver a candid (and occasionally blunt) assessment of the best, the worthwhile, and the most overhyped information technologies (IT) for life sciences. The presentation has helped scientists, leadership, and IT professionals understand the basic topics related to computing, storage, data transfer, networks, and cloud that are involved in supporting data intensive science.

4:00 Conference Adjourns

Data Transfer

Achieving Speed, Security, and Scalability

Time and money spent transferring data are hampering the ability of data-intensive scientific researchers to share data and generate new knowledge. Whether migration to cloud or across campus, flexibility and reliability, as well as speed, security, and scalability, must be considered. Through case studies, the Data Transfer track presents both hardware and software enterprise data management solutions that facilitate high-speed data transfer to enable productivity and foster collaboration.

TUESDAY, APRIL 16

7:00 am Workshop Registration Open and Morning Coffee

8:00 – 11:30 Recommended Morning Pre-Conference Workshops*
W7. Blockchain 101

12:30 – 4:00 pm Recommended Afternoon Pre-Conference Workshops*

** Separate registration required. Please click here for details.*

2:00 – 6:30 Main Conference Registration Open

4:00 PLENARY KEYNOTE SESSION
Please click here for details.

5:00 – 7:00 Welcome Reception in the Exhibit Hall with Poster Viewing

WEDNESDAY, APRIL 17

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Please click here for details.

9:45 Coffee Break in the Exhibit Hall with Poster Viewing

DATABASES, DATA SHARING, AND SCALABLE SOLUTIONS

10:50 Chairperson's Remarks

11:00 DB4Sci, Open Source Database as a Service (DBaaS) for On-Prem and Cloud

John Dey, HPC Systems Engineer, Scientific Computing, Fred Hutchinson Cancer Research Center

Cloud-based databases as a service (DBaaS) have extremely simplified database management. We can create database instances using best practice configuration including backup and DR plans with a single push of a button. However, databases are sensitive to latency and cloud-based databases cannot be used effectively from on-prem. Supporting Postgres, MongoDB, MariaDB/MySQL and Neo4J graph databases, DB4Sci is the ideal DBaaS solution for on-premise and multi-cloud deployments that supports high performance backup to cloud storage.

11:30 Data Centralization for Any Lab, Any Equipment, Any Software

Charles Fracchia, Founder and CEO, BioBright

It's all too easy to end up with cloud infrastructures that mirror the shortcomings of local data management. In this talk, we will present how carefully designed software can make data available seamlessly, removing the need for scientists to dig through disparate systems to find what they need and analyze it. We will present a new model that allows data centralization and cloud-based data analysis while minimizing the burden on the scientist and improving workflows and products.

12:00 pm Architecting for Success with Machine Learning Data Platforms for Image Analysis and Precision Medicine

Sponsored by DDN STORAGE

George Vacek, PhD, Global Business Director, Healthcare and Machine Learning, DDN (DataDirect Network)

Aspects of precision medicine, including automated image analysis or mining patient data to better target therapies, leverage AI & deep learning. While early training data fits in-node, successful approaches attract more data. Forward thinking organizations adopt scalable architectures, the unprepared fall behind. We review key considerations for machine-learning platforms ensuring effortless scaling, deeper insights and a shorter path to value.

12:15 Presentation to be Announced

Sponsored by INTERNET 2

12:30 Session Break

12:40 Luncheon Presentation I to be Announced

Sponsored by WEKA.IO World's Fastest File System

1:10 Luncheon Presentation II: Rapidly Aggregate and Share Large Data Sets Using IBM Aspera

Sponsored by IBM

Joseph Hansen, Aspera Technical Sales & Delivery Expert, IBM Hybrid Cloud, Aspera IBM

The life sciences industry is generating massive data stores as a result of modern techniques. This rich data is stored in a variety of methods, lacking standardization. Capturing the aggregate value of the data is critical to new discoveries, yet such analysis requires data consolidation. Learn how IBM Aspera accelerates big data analysis in life sciences using any deployment environment.

1:40 Session Break

DATA SECURITY AND COMPLIANCE

1:50 Chairperson's Remarks

1:55 Achieving Compliant Collaboration: Securely Managing Protected Data to Accelerate Discovery

Brigitte Raumann, Product Manager, Globus, University of Chicago

Researchers working with protected data face many challenges in managing this data and sharing it with colleagues. Meeting compliance requirements is complicated, and investigators must often either slow their process to address this burden or resort to using distilled, de-identified data instead. With higher assurance levels provided by Globus, the leading research data management service, users can optimize their protected data environments by integrating secure, scalable data management capabilities into existing workflows and applications.

2:25 Presentation to be Announced

2:55 Sponsored Presentation *(Opportunity Available)*

3:25 Refreshment Break in the Exhibit Hall with Poster Viewing

COST SAVING STRATEGIES

4:00 Building a Low-Cost Sample Tracking System with G Suite & Jira Cloud

Bruce Kozuma, MSCS, PMP, CPIM, CSM, CPO, Principal Systems Analyst, Broad Information Technology Services, The Broad Institute of MIT and Harvard

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Sponsored by ARISTA

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CONSULTANCIES AND COMPUTING: ASSESSMENTS, ORGANIZATIONAL CHALLENGES & TRENDS

1:55 Chairperson's Remarks

Chris Dwan, Senior Technologist and Independent Life Sciences Consultant

2:00 PANEL DISCUSSION: High Performance Consultancies

Moderator:

Chris Dwan, Senior Technologist and Independent Life Sciences Consultant

Panelists:

Tanya Cashorali, CEO, Founder, TCB Analytics

Aaron Gardner, Director of Technology, BioTeam, Inc.

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4:00 Conference Adjourns

Edge

Intelligent Compute from Device to Network

Simply defined, edge can be considered where people and devices or things connect with the network. Compute-intensive edge applications, including Internet of Things (IOT), augmented reality (AR), and artificial intelligence (AI), interact with their environment based on ever-changing conditions. Where should this complex data be transferred, stored, and analyzed? During the Inaugural Edge track, data scientists share their real-world living-on-edge experiences of leveraging this shifting space to increasingly deliver on the promise of cloud and its growing complexity.

TUESDAY, APRIL 16

7:00 am Workshop Registration Open and Morning Coffee

8:00 – 11:30 Recommended Morning Pre-Conference Workshops*
W7. Blockchain 101

12:30 – 4:00 pm Recommended Afternoon Pre-Conference Workshops*
W11. Digital Data Strategy for the Lab

** Separate registration required. Please click here for details.*

2:00 – 6:30 Main Conference Registration Open

4:00 PLENARY KEYNOTE SESSION
Please click here for details.

5:00 – 7:00 Welcome Reception in the Exhibit Hall with Poster Viewing

WEDNESDAY, APRIL 17

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION
Please click here for details.

9:45 Coffee Break in the Exhibit Hall with Poster Viewing

EDGE COMPUTE: NEW DATA – NEW CHALLENGES

10:50 Chairperson's Remarks

11:00 FEATURED PRESENTATION: Edge Intelligence: Edge Computing in the Intelligent Era
Weisong Shi, PhD, Charles H. Gershenson Distinguished Faculty Fellow, IEEE Fellow, Professor, Computer Science; Director, Mobile and Internet SysTems Laboratory (MIST); Director, Wireless Health Initiative (WHI), Wayne State University
The proliferation of Internet of Everything and success of rich cloud services have pushed a new computing paradigm, edge computing, which calls for processing data at the network's edge. It can potentially address concerns of response time requirement, battery life constraint, bandwidth cost saving, and data safety and privacy. We discuss its vision and challenges, and how it and artificial intelligence will interact in 5-10 years.

11:30 Presentation to be Announced

12:00 pm Sponsored Presentation *(Opportunity Available)*

12:30 Session Break

12:40 Luncheon Presentation *(Sponsorship Opportunity Available)* **or Enjoy Lunch on Your Own**

1:40 Session Break

EDGE COMPUTE FOR MOBILE APPLICATIONS

1:50 Chairperson's Remarks
Yu Cao, PhD, Associate Professor, Computer Science, University of Massachusetts Lowell; Co-Director, UMass Center for Digital Health (CDH)

1:55 Edge Computing for Augmented Reality in the Wild
Maria Gorlatova, PhD, Assistant Professor, Electrical and Computer Engineering, Duke University
Augmented reality, which places digital context in a physical environment surrounding a user, is one of the most demanding, arising mobile applications. This talk describes how we address the critical challenges of augmented reality with edge computing, focusing specifically on how we use edge to make augmented reality more adaptive and intelligent.

2:25 Presentation to be Announced

2:55 Sponsored Presentation *(Opportunity Available)*

3:25 Refreshment Break in the Exhibit Hall with Poster Viewing

CASE STUDIES: SETTING UP A SMARTER LAB

4:00 How to Be "In the Flow": Combining Business Process and Data Flows for End-to-End Automated Laboratory Workflows
Andreas Steinbacher, PhD, R&D Informatics and Machine Learning/ Artificial Intelligence Leader for Lab Automation, Roche Innovation Center Munich
Currently the automation-level of end-to-end laboratory workflows in the life science research space is rather low. This results from a strong focus on automating single workflow steps with separated instruments/integrations, and on the other hand, from the need of flexible (re-)configuration of laboratory workflows in a research environment. Business process modelling and management tools are successfully applied in other industries and are also proposed as a solution for life science automation. However, typically they lack to track the corresponding data flow. This talk aims at identifying the essential requirements of an end-to-end laboratory workflow automation and how business process management tools can help to achieve this goal.

4:30 End-to-End Sample Tracking in the Laboratory Using a Custom Internet of Things Device
William Neil, Laboratory Automation Specialist, Bristol-Myers Squibb

5:00 Sponsored Presentation *(Opportunity Available)*

5:30 Best of Show Awards Reception in the Exhibit Hall with Poster Viewing

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THURSDAY, APRIL 18

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9:45 Coffee Break in the Exhibit Hall and Poster Competition Winners Announced

EDGE COMPUTE FOR HEALTHCARE

10:30 Chairperson's Remarks

10:40 How Voice-Enabled Technology Could Change the Healthcare Industry
David Herzig, MSc, Senior Scientist, pRED Pharma Research and Early Development, F. Hoffmann-La Roche AG
Voice-enabled digital assistants already have a big impact: on our mobile phones, computers, smartwatches, cars, and even in our homes. This talk presents several use cases on how voice-enabled technology could improve and/or change several work areas within the healthcare industry.

11:10 A New Deep Learning-Based Food Recognition System for Dietary Assessment on an Edge Computing Service Infrastructure
Yu Cao, PhD, Associate Professor, Computer Science, University of Massachusetts Lowell; Co-Director, UMass Center for Digital Health (CDH)

11:40 Sponsored Presentation *(Opportunity Available)*

12:10 pm Session Break

12:20 Luncheon Presentation *(Sponsorship Opportunity Available)* **or Enjoy Lunch on Your Own**

1:20 Dessert Refreshment Break in the Exhibit Hall with Poster Viewing

CONSULTANCIES AND COMPUTING: ASSESSMENTS, ORGANIZATIONAL CHALLENGES & TRENDS

1:55 Chairperson's Remarks
Chris Dwan, Senior Technologist and Independent Life Sciences Consultant

2:00 PANEL DISCUSSION: High Performance Consultancies
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Panelists:
Tanya Cashorali, CEO, Founder, TCB Analytics
Aaron Gardner, Director of Technology, BioTeam, Inc.
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4:00 Conference Adjourns

AI for Pharma & Biotech

Disrupting the Drug Discovery Approach

One of the biggest bottlenecks in drug development is in the early research stage. This stage is time needed to go from identifying a potential disease target to testing a drug candidate's probability of hitting that target. This stage can take four to six years. Ambitious AI techniques are aiming to compress this process to one year. As of August 2018, over 25 pharmaceutical companies and over 95 startups are using artificial intelligence for drug discovery. Time to develop new life-saving drugs can be drastically reduced by using AI. The Inaugural AI for Pharma and Biotech track will discuss opportunities that biopharma organizations are using to harness the power of AI and machine learning technologies to maximize and accelerate drug discovery efforts from early stage to adoption to practical application. Presentations will also discuss challenges of these technologies being sophisticated enough to make sense of complex medical data.

TUESDAY, APRIL 16

7:00 am Workshop Registration Open and Morning Coffee

8:00 – 11:30 Recommended Morning Pre-Conference Workshops*
W4. AI for Pharma

12:30 – 4:00 pm Recommended Afternoon Pre-Conference Workshops*
W11. Digital Data Strategy for the Lab

** Separate registration required. Please click here for details.*

2:00 – 6:30 Main Conference Registration Open

4:00 PLENARY KEYNOTE SESSION
Please click here for details.

5:00 – 7:00 Welcome Reception in the Exhibit Hall with Poster Viewing

WEDNESDAY, APRIL 17

7:30 am Registration Open and Morning Coffee

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9:45 Coffee Break in the Exhibit Hall with Poster Viewing

ACCELERATING PRECISION MEDICINE WITH AI: CHALLENGES & OPPORTUNITIES

10:50 Chairperson's Remarks

11:00 Next Generation Cognitive Supercomputing and Its Impact on Precision Medicine: Challenges, Trends and Opportunities
Edmon Begoli, PhD, Chief Data Architect, Oak Ridge National Laboratory
The impact of AI methods and big data technologies in pharma research and genomic medicine to advance precision medicine initiatives are taking on more importance. AI is becoming key player in the convergence of medical data and computer technologies. This talk gives a big picture viewpoint on the evolvement of AI's role, what the key drivers and challenges are, and trends to look for during the next 10-15 years.

11:30 From Hype to Reality: Data Science Enabling Personalized Medicine
Holger Fröhlich, PhD, Director and Head of Data Science Enablement, R&D Informatics, UCB BioSciences GmbH
Personalized medicine is deeply connected to and dependent on data science, specifically machine learning. While during recent years there has been a lot of enthusiasm about the potential of 'big data' and machine learning-based solutions, there exist only few examples that impact current clinical practice. In my talk, I will review the potential of state-of-the-art data science approaches for personalized medicine, discuss open challenges, and highlight directions that may help to overcome them in the future.

12:00 pm Sponsored Presentation *(Opportunity Available)*

12:30 Session Break

12:40 Luncheon Presentation *(Sponsorship Opportunity Available)* **or Enjoy Lunch on Your Own**

1:40 Session Break

USING AI FOR DATA AND TEXT MINING

1:50 Chairperson's Remarks
Edwin Addison, PhD, MBA, JD, CEO, Cloud Pharmaceuticals

1:55 Analysis of Off-Label Uses of Drugs for Rare Diseases
Matthew Clark, PhD, Director, Scientific Services, Life Sciences, Elsevier
Many rare diseases do not have approved treatments. It may be that drugs approved for other indications may be useful to treat these diseases, but it is difficult to gather information outside of formal publications. However, the FDA adverse event database, FAERS, captures prescribing indications for all drugs administered to a patient when any adverse event is reported. By mining this data one can see what individual physicians are using to treat diseases and compare to treatments that appear in formal trials. We will also compare the "real life" treatments to those that can be found using informatics.

2:25 Using AI to Identify and Navigate Relationships and Identify Context for Pharma Data
Peter Henstock, PhD, Machine Learning & AI Technical Lead, Business Technology, Pfizer, Inc.
As our pharma data sets increase in size, the ability to fully utilize them has become more challenging. A baseline approach is search capability provided in various forms from the databases-level queries through enterprise-level results. The limitations are being able to create the right queries to find all the relevant information without having to craft the perfect queries or sift through 1000s of entries. The approach draws upon text mining, information retrieval and network analysis all behind a common user interface and is currently being developed for multiple databases.

2:55 Sponsored Presentation *(Opportunity Available)*

3:25 Refreshment Break in the Exhibit Hall with Poster Viewing

BIOMARKER DETERMINATION IN A DIAGNOSTIC CONTEXT: ISSUES AND CHALLENGES WITH IDENTIFICATION, VALIDATION, DEVELOPMENT, AND IMPLEMENTATION OF TOOLS FOR CANCER SCREENING, DIAGNOSIS, AND TREATMENT

4:00 PANEL DISCUSSION: The Difference between Biomarkers and Diagnostics: It's Bigger Than You Think

Moderator:

Michael N. Liebman, PhD, IPQ Analytics, LLC and Strategic Medicine, Inc.

Panelists:

Michael Montgomery, MD, Global Executive Director, Incyte Corporation

Jonathan Morris, MD, Vice President, Provider Solutions; Chief Medical Informatics Officer, Real World Insights, IQVIA

Jun Zhu, PhD, Professor, Genetics and Genomic Sciences, Icahn School of Medicine at Mount Sinai

Biomarkers are used to evaluate cancer risk, detect end stage cancer and suggest optimal therapy for specific patients. Recent advances in -omics research continue to enable researchers to classify molecular fingerprints of specific cancers. Discovery and development of new cancer markers remains a major research focus to improve screening, diagnosis, and treatment but is hampered by the limited knowledge of the details of disease progression. This challenges the ability to identify markers that may be causal rather than correlative and impacts their use as true diagnostics. By example, literature analysis of 250,000 papers listing biomarkers in cancer yield less than 100 FDA approved diagnostics. Every experiment yields a biomarker; however, every experiment does not yield a diagnostic that can more accurately drive clinical action. How can we close this gap? It is critical to develop a better understanding of the disease process and how observations from genomics, proteomics, and metabolomics may impact that process in different ways. This interactive panel will explore experimental and analytic methods, issues and challenges impacting identification, validation, development and implementation in cancer, diagnosis and treatment.

5:00 Sponsored Presentation *(Opportunity Available)*

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THURSDAY, APRIL 18

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8:00 PLENARY KEYNOTE SESSION & AWARDS PROGRAM

Please click here for details.

9:45 Coffee Break in the Exhibit Hall and Poster Competition Winners Announced

HARNESSING THE POWER OF AI FOR DRUG DISCOVERY RESEARCH: FROM SILOED DATA TO SHARED EXPERTISE

10:30 Chairperson's Remarks

10:40 Making Real World Data Prepared to Apply Machine Learning and AI for Discovery Research

Daniel H. Robertson, PhD, Vice President, Digital Technology; Director, Center for Applied Data Sciences, Indiana Biosciences Research Institute

Although much of the major healthcare systems transition to electronic medical record (EHR) systems to digitally capture the patient data is complete, this data is not readily available or in the form to enable advanced analyses within discovery. Working with EHR data extracted from a large health information exchange, we have developed a robust and standardized data-cleaning pipeline to produce a clean, high-quality and normalized dataset ready for discovery research.

11:10 Boosting Drug Discovery with Machine Learning

Rishi Gupta, PhD, Senior Research Scientist, AbbVie, Inc.

Abhik Seal, PhD, Senior Data Scientist, AbbVie, Inc.

11:40 Sponsored Presentation *(Opportunity Available)*

12:10 pm Session Break

12:20 Luncheon Presentation *(Sponsorship Opportunity Available)* **or Enjoy Lunch on Your Own**

1:20 Dessert Refreshment Break in the Exhibit Hall with Poster Viewing

PROPELLING THE PIPELINE: AI IN DRUG DISCOVERY AND DEVELOPMENT

1:55 Chairperson's Remarks

Bino John, PhD, Associate Director, AstraZeneca

2:00 FEATURED PRESENTATION: Application of Machine Learning and Artificial Intelligence as a Driver of Productivity in Drug Discovery & Development

Morten Sogaard, Vice President, Target Sciences & Technologies, External Sciences & Innovation, Worldwide R&D, Pfizer

This talk will provide an overview of the impact of AI on productivity on pharma with the focus on three areas – process engineering & automation, drug design and manufacturing, and target and biomarker discovery and validation, illustrated by specific examples.

2:30 Intersection of AI Techniques and Rare Disease Diagnosis

Margaret Bray, PhD, Senior Data Scientist, Alexion

A look into the latest AI techniques applied to the field of rare disease diagnostics as well as a look at the limitation of current methodologies and areas for future growth.

3:00 Automated Compliance and Quality Checks

Etzard Stolte, PhD, Global Head Knowledge Management PTD, F. Hoffmann-La Roche

Machine learning technologies, like natural language processing (NLP), have reached the maturity for automated quality controls of operational information, e.g. as compliance and quality supervision tools. Over the last years Pharma Technical Development at Roche has created a single front end for many business and validated systems that uses a mixture of curation and supervised learning tools to increase compliance and reduce operational costs. This talk will present our learnings, as well as the limitations and opportunities we see for the future.

3:30 AI for Improving Drug Safety to Accelerate Drug Development

Bino John, PhD, Associate Director, AstraZeneca

Drug candidates that result from millions of dollars in investment frequently fail during clinical or preclinical testing phases due to safety concerns. Such safety related failures continue to pose a challenge to the industry. This talk will highlight some of the efforts at AstraZeneca that seek to use AI/ML approaches to minimize such clinical/preclinical failures.

4:00 Conference Adjourns

AI for Genomics

Personalizing Treatments and Cures

The role of computer science in modeling cells, analyzing and mapping data networks, and incorporating clinical and pathological data to determine how diseases arise from mutations is becoming more important in genomic medicine. We need to understand where the disease starts and how artificial intelligence delivers genes and pathways for drug targets and diagnostics. The Inaugural AI for Genomics track explores case studies that apply deep learning, machine learning, artificial intelligence, and predictive analysis methods to genomic medicine. We will discuss data curation techniques, text mining approaches, and statistical analytics that utilize deep machine learning to support AI efforts. This will help to integrate omics approaches to discover disease or drug response pathways and identify personalized and focused treatments and cures.

TUESDAY, APRIL 16

7:00 am Workshop Registration Open and Morning Coffee

8:00 – 11:30 Recommended Morning Pre-Conference Workshops*
W4. AI for Pharma

12:30 – 4:00 pm Recommended Afternoon Pre-Conference Workshops*
W12. Data Science Driving Better Informed Decisions

** Separate registration required. Please click here for details.*

2:00 – 6:30 Main Conference Registration Open

4:00 PLENARY KEYNOTE SESSION
Please click here for details.

5:00 – 7:00 Welcome Reception in the Exhibit Hall with Poster Viewing

WEDNESDAY, APRIL 17

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION
Please click here for details.

9:45 Coffee Break in the Exhibit Hall with Poster Viewing

ACCELERATING PRECISION MEDICINE WITH AI: CHALLENGES & OPPORTUNITIES

10:50 Chairperson's Remarks

11:00 Next Generation Cognitive Supercomputing and Its Impact on Precision Medicine: Challenges, Trends and Opportunities
Edmon Begoli, PhD, Chief Data Architect, Oak Ridge National Laboratory
The impact of AI methods and big data technologies in pharma research and genomic medicine to advance precision medicine initiatives are taking on more importance. AI is becoming key player in the convergence of medical data and computer technologies. This talk gives a big picture viewpoint on the evolvement of AI's role, what the key drivers and challenges are, and trends to look for during the next 10-15 years.

11:30 From Hype to Reality: Data Science Enabling Personalized Medicine
Holger Fröhlich, PhD, Director and Head of Data Science Enablement, R&D Informatics, UCB BioSciences GmbH
Personalized medicine is deeply connected to and dependent on data science, specifically machine learning. While during recent years there has been a lot of enthusiasm about the potential of 'big data' and machine learning-based solutions, there exist only few examples that impact current clinical practice. In my talk, I will review the potential of state-of-the-art data science approaches for personalized medicine, discuss open challenges, and highlight directions that may help to overcome them in the future.

12:00 pm Sponsored Presentation *(Opportunity Available)*

12:30 Session Break

12:40 Luncheon Presentation *(Sponsorship Opportunity Available)*

1:40 Session Break

RNA-SEQ AND BEYOND: MACHINE LEARNING-BASED METHODS

1:50 Chairperson's Remarks
Bino John, PhD, Associate Director, AstraZeneca

1:55 Reduction of scRNA-seq by Deep Learning
Shanrong Zhao, PhD, Director, Computational Biology and Bioinformatics, Pfizer

2:25 Presentation to be Announced

2:55 Sponsored Presentation *(Opportunity Available)*

3:25 Refreshment Break in the Exhibit Hall with Poster Viewing

GENE EDITING USING DEEP LEARNING

4:00 Transformative Gene Therapies for Severe Genetic Diseases and T Cell-Based Immunotherapies
Hans Bitter, PhD, Vice President, Data Sciences, bluebird bio

4:30 Presentation to be Announced

5:00 Sponsored Presentation *(Opportunity Available)*

5:30 Best of Show Awards Reception in the Exhibit Hall with Poster Viewing

7:00 – 10:00 Bio-IT World After Hours @The Boston Children's Museum

THURSDAY, APRIL 18

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION & AWARDS PROGRAM
Please click here for details.

9:45 Coffee Break in the Exhibit Hall and Poster Competition Winners Announced

METHODS AND MODELS TO BETTER UTILIZE DATA FOR RISK ASSESSMENT, DIAGNOSIS AND TREATMENT DECISIONS

10:30 Chairperson's Remarks

10:40 Using DNA Tools to Predict Genetically Based Diseases

Stephen Hsu, Vice President for Research and Graduate Studies, Michigan State University; Member, Cognitive Genomics Lab and Scientific Advisor, BGI

Using methods from Machine Learning / AI, and data sets such as the UK BioBank 500k SNP genotypes, we construct genomic predictors for several complex traits. Our height predictor captures nearly all of the predicted SNP heritability for this trait -- actual heights of most individuals in validation tests are within a few cm of predicted heights. I also discuss application of these methods to cognitive ability and polygenic disease risk and advances on human reproduction in the coming decade.

11:10 Presentation to be Announced

11:40 Sponsored Presentation *(Opportunity Available)*

12:10 pm Session Break

12:20 Luncheon Presentation *(Sponsorship Opportunity Available)* **or Enjoy Lunch on Your Own**

1:20 Dessert Refreshment Break in the Exhibit Hall with Poster Viewing

METHODS AND MODELS TO BETTER UTILIZE DATA FOR RISK ASSESSMENT, DIAGNOSIS AND TREATMENT DECISIONS (CONT.)

1:55 Chairperson's Remarks

Yuval Itan, PhD, Assistant Professor, Department of Genetics and Genomic Sciences; Member, Charles Bronfman Institute for Personalized Medicine, Icahn School of Medicine at Mount Sinai

2:00 Pinpointing Transcript-Damaging Disease-Causing Variants as a Major Step towards RNA Therapeutics

Sahar Gelfman, PhD, Associate Research Scientist, Columbia University Medical Center

Since its publication in 2017, the Transcript-inferred Pathogenicity (TraP) model has become a major resource for genetic diagnostics, identifying pathogenic non-coding variants, and helping to change the common conception that pathogenic genetic variation is caused solely by coding mutations. TraP has been incorporated in diagnostic pipelines in tens of research institutes worldwide. TraP is also available as a website for single queries (www.trap-score.org), providing successful diagnosis of genetic disorders and affecting treatment decisions.

2:30 AI Assisted Rapid Clinical Whole Genome Sequencing for Critical Care

Ray Veeraraghavan, PhD, Director of IT & Informatics, Rady Children's Institute for Genomic Medicine

3:00 Deciphering the Complex Heterogeneity of Cancer

Patrice M. Milos, PhD, Co-Founder/President and CEO, Medley Genomics, Inc.

Medley Genomics provides a software platform that uses patent-pending algorithms and advanced data analytics to describe a patient's diverse tumor cell mixture. This enables creation of unique molecular diagnostic fingerprints for improving patient diagnosis, monitoring and treatment of cancer, and helps to improve novel oncology therapies and therapeutic combinations including individual cancer vaccine development.

3:30 Estimating Genotypic Heterogeneity Underlying Human Disease

Yuval Itan, PhD, Assistant Professor, Department of Genetics and Genomic Sciences; Member, Charles Bronfman Institute for Personalized Medicine, Icahn School of Medicine at Mount Sinai

Whole exome and whole genome sequencing provide hundreds of thousands of genetic variants per patient, of them only very few are pathogenic. Current computational methods are inefficient in differentiating pathogenic mutations from neutral genetic variants that are predicted to be damaging and cannot predict the functional outcome of mutations. We will present deep learning approaches and machine learning methods in the role of detecting pathogenic mutations. Visualization tools for better utilizing NGS data will be presented to understand human disease genomics.

4:00 Conference Adjourns

AI for Healthcare

Transforming the Industry Landscape

Artificial intelligence in the healthcare industry is predicted to save $150 billion annually for the US. As such, AI is being rapidly deployed in many areas of the healthcare landscape. The Inaugural AI for Healthcare track will primarily focus on the providers, attracting CIOs, CTOs, VPs of IT and Informatics along with senior physicians and clinicians from the leading US hospitals who will share their experiences of using AI in clinical care and hospital operations.

TUESDAY, APRIL 16

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W4. AI for Pharma

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WEDNESDAY, APRIL 17

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION
Please click here for details.

9:45 Coffee Break in the Exhibit Hall with Poster Viewing

PRACTICAL APPLICATION OF AI IN CLINICAL CARE

10:50 Chairperson's Remarks
Stanley Huff, MD, Chief Medical Informatics Officer, Intermountain Healthcare and Professor of Biomedical Informatics, University of Utah

11:00 Interoperability: A Platform for Sharing Knowledge as Executable Programs
Stanley Huff, MD, Chief Medical Informatics Officer, Intermountain Healthcare and Professor of Biomedical Informatics, University of Utah

Between 200,000 and 400,000 people die each year in the US due to medical errors. Many of these deaths could be prevented by computerized decision support programs (CDS). Previous CDS strategies for making CDS widely available have been ineffective. However, recent advances in data sharing standards (HL7 FHIR), CIMI, LOINC, and SNOMED CT) now make it feasible to share clinical knowledge as executable programs/applications that can run in any clinical system (EHR) that supports the standard.

11:30 It's Not Just the Last Mile: The Benefits of Algorithmic Enhanced Care Can Go Far beyond the Algorithm
Sandy Aronson, Executive Director of IT, Partners HealthCare Personalized Medicine

There is a great deal of justifiable excitement surrounding the use of algorithms in general and AI in particular to improve patient care. However, realizing the potential of algorithmic enhanced care will involve more than developing algorithms and making them available to clinicians. The most substantial benefits may come from the dramatic reformulations of the care delivery process these new capabilities make possible. This talk will discuss the process for redesigning clinical workflows to take maximum advantage of these new tools.

12:00 pm Sponsored Presentation *(Opportunity Available)*

12:30 Session Break

12:40 Luncheon Presentation *(Sponsorship Opportunity Available)* **or Enjoy Lunch on Your Own**

1:40 Session Break

PRACTICAL APPLICATION OF AI IN CLINICAL CARE

1:50 Chairperson's Remarks

1:55 Broad Data Sciences Platform: Personalized Medicine and Digital Health
Anthony Philippakis, MD, PhD, Chief Data Officer, Broad Institute and Cardiologist, Brigham and Women's Hospital

This talk will overview the activities of the Broad Data Sciences Platform with regard to patient-facing software, software to enable data generators and researcher-facing software.

2:25 Redefining the Diagnostic Radiologist's Value in the Age of Big Data and Artificial Intelligence
Tarik Alkasab, MD, PhD, Service Chief Informatics/IT & Operations, Massachusetts General Hospital and Harvard Medical School

Diagnostic radiologists have traditionally examined images of their patients and produced written, natural language reports of the findings and their integrative impression. In the data-oriented health care system of the 21st century, an arsenal of artificially intelligent tools will help them extract maximum value from medical images and contribute in new, unimagined ways to the care of their patients.

2:55 Sponsored Presentation *(Opportunity Available)*

3:25 Refreshment Break in the Exhibit Hall with Poster Viewing

PRACTICAL APPLICATION OF AI IN CLINICAL CARE

4:00 How to Evaluate Artificial Intelligence in Clinical Care
Vitaly Herasevich, MD, PhD, Associate Professor of Anesthesiology and Medicine, Department of Anesthesiology and Perioperative Medicine, Mayo Clinic

Governments and clinical providers are investing billions of dollars in health information technologies (HIT) in the expectation that this will translate into healthier patients experiencing better care at lower cost. As the initial HITECH investment dries up, we are entering a phase of market saturation for HIT commercial systems. Competition in this space will lead to innovation and a proliferation of new technologies with difficult-to-predict effects on providers, patients, and health systems. A systematic approach to the evaluation of technology in healthcare is needed if we are interesting to reliably discriminate between useful innovation and clever marketing.

FEEDBACK FROM INVESTORS

4:30 PANEL DISCUSSION: AI and Advanced Algorithms in Healthcare from the Investor's Perspective
Viet Nguyen, MD, Founder, Strata Metrics and Clinical Informaticist, Internist, Paediatrician & Health IT Champion (Moderator)
Sagran Moodley, Senior Vice President, UHC Clinical Data Services & Technology, UnitedHealth Group
James Falkoff, Principal, Converge
A.G. Breitenstein, Partner, Optum Ventures

- Investing in and evaluating healthcare start-ups
- Real-world applications of AI in the healthcare industry
- The use of advanced analytics and AI to improve both patient care and provider operations
- How are emerging partnerships forming between integrated health systems, R&D and real-world evidence arms of Pharma?
- Unique opportunities and challenges faced in the healthcare industry
- Impact of AI on future jobs in the healthcare industry
- What can healthcare learn from other industries?

5:00 Sponsored Presentation *(Opportunity Available)*

5:30 Best of Show Awards Reception in the Exhibit Hall with Poster Viewing

7:00 – 10:00 Bio-IT World After Hours @The Boston Children's Museum

THURSDAY, APRIL 18

7:30 am Registration Open and Morning Coffee

8:00 PLENARY KEYNOTE SESSION & AWARDS PROGRAM
Please click here for details.

9:45 Coffee Break in the Exhibit Hall and Poster Competition Winners Announced

RE-DESIGNING OPERATIONS AND WORKFLOWS WITH AI

10:30 Chairperson's Remarks

10:40 System Engineering in Healthcare Role of a Command Center

Jim Scheulen, Chief Administrative Officer, Emergency Medicine and Capacity Management, Johns Hopkins Hospital

Hospitals are complex organizations and must now operate at high levels of efficiency. In order to meet financial, service, safety and quality goals, healthcare institutions are increasingly turning to sophisticated modeling and implementing control centers.

11:10 Developing and Commercializing Clinically Relevant Machine Learning Solutions

Neil Tenenholtz, PhD, Director of Machine Learning, MGH & BWH Center for Clinical Data Science

The healthcare industry provides a unique set of challenges for machine learning practitioners. From protected datasets to the complexity of the physician's workflow, the required background knowledge is often siloed across multiple domain experts. Effective knowledge transfer between these parties is essential in developing a successful product. In this talk, we'll discuss ways to break down these barriers and maximize the likelihood of a developing a clinically successful product.

11:40 Sponsored Presentation *(Opportunity Available)*

12:10 pm Session Break

12:20 Luncheon Presentation *(Sponsorship Opportunity Available)* **or Enjoy Lunch on Your Own**

1:20 Dessert Refreshment Break in the Exhibit Hall with Poster Viewing

INVALUABLE INSIGHT FROM PAYERS AND PATIENTS

1:55 Chairperson's Remarks

Anthony Philippakis, MD, PhD, Chief Data Officer, Broad Institute and Cardiologist, Brigham and Women's Hospital

2:00 How AI Will Amplify the Benefits of Value Based Care in Integrated Delivery Networks

John Mattison, MD, CMIO, Kaiser Permanente

Value based care is best realized through synergy with integrated delivery networks. Machine learning creates a natural synergy. Opportunities and early experience at Kaiser Permanente will be presented.

2:30 The Patient's Perspective: Digitizing Human Health

Renee Deehan Kenney, PhD, Vice President, Biocomputing, PatientsLikeMe

In 2017, PatientsLikeMe launched DigitalMe, a program whereby individuals can donate longitudinally collected bio-samples for multi-omic analysis, together with phenotypic data. Since then, PatientsLikeMe has collected over 4,000 longitudinal blood samples from over 2,000 healthy controls and people living with neurological, immunological, mental health, pain and fatigue conditions. Here, they will share the development of an analysis platform to collect complex data, and compute on it to derive insights about human health.

3:00 Be Smarter, Faster, Earlier! How Can Artificial Intelligence Help Payers Serve a Market with Ever-Evolving Demands?

Jelani Akil McLean, Managing Director, Office of Clinical Affairs, BlueCross BlueShield Association

With information more readily available and innovations occurring at record pace, the demand on the payer industry is to make smarter decisions, at a faster pace, and in a 'just-in-time' manner. The use of AI is leading to innovative approaches, in the payer industry, to meet the challenging demands of a more and rapidly informed market.

FEEDBACK FROM INVESTORS

3:20 Demystifying AI and Machine Learning in Healthcare

Bill Evans, Managing Director and CEO, Rock Health

In theory, artificial intelligence and machine learning (AI/ML) can be applied to nearly every process in healthcare. In practice, however, entrepreneurs, enterprise leaders, and investors need to discriminate between incremental improvements and the 10X improvements that will transform the industry. While there's clear potential for an AI-enabled healthcare system, how much actual value is AI delivering now—and how much will it bring in the next five years? This session will take a deep dive into concrete examples of practical, real-world use cases and provide a framework for evaluating impactful technologies.

3:40 Examining the Role Data and Analytics Can Play in Creating Transparency, Predictability and Clarity in the Healthcare Industry

A.G. Breitenstein, Partner, Optum Ventures

4:00 Conference Adjourns

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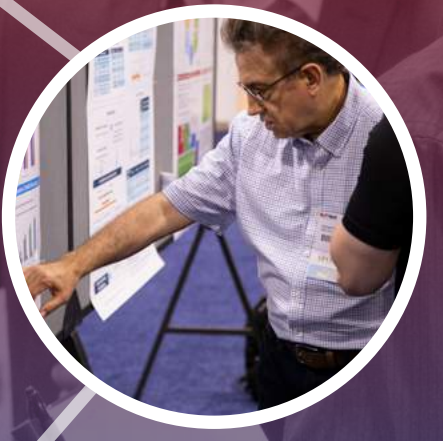

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The third annual Bio-IT FAIR Data Hackathon will continue in the tradition of uniting life science and IT teams to tackle actual genomic datasets with maximum impact potential.

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Reservations: Visit the travel page of **Bio-ITWorldExpo.com**

Discounted Room Rate: $294 s/d
Discounted Cut-off Date: March 8, 2019

Go to the travel page of **Bio-ITWorldExpo.com** for additional info