

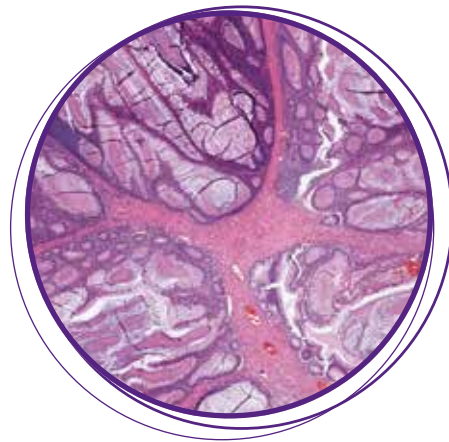


9TH DIGITAL PATHOLOGY & AI CONGRESS: USA

UTILIZING DIGITAL PATHOLOGY & AI TO ADVANCE PATHOLOGY PRACTICE,
ENABLE ENHANCED PATIENT CARE AND FURTHER DRUG DISCOVERY

NEW YORK USA

June 22-23 2023



#DigiPathNY

www.global-engage.com



Accelerating the event industry's
transition to a sustainable future



Global Engage is pleased to announce the **9th Digital Pathology & AI Congress: USA**, which is confirmed to take place on June 22-23 2023 at the Capitale in downtown New York. There will also be a pre-event workshop being hosted by Aiforia as well as tours of the Memorial Sloan Kettering and Mount Sinai pathology departments on June 21st.

This world-renowned event which regularly attracts 300+ academic, hospital, pharma and industry leaders facilitates the discussion of the most cutting-edge digital pathology, AI, image analysis and computational pathology research. The program has been specifically designed to attract both those who have been utilizing Digital Pathology for many years or those new to the technology and interested to invest.

With over 60 presentations and a full exhibitor hall there is ample opportunity to learn from top scientists, network and broaden your connections and should you wish showcase your work in the poster presentation sessions or get involved in the interactive panel and roundtable discussions.

Event Website: www.global-engage.com/event/digital-pathology-usa

Aiforia Workshop: www.global-engage.com/event/workshop-aiforia

MSKCC Tour: www.global-engage.com/event/memorial-sloan-kettering-site-visit

Mount Sinai Tour: www.global-engage.com/event/mount-sinai-site-visit

CONFERENCE SYNOPSIS

	Track 1	Track 2	Track 3
Day 1	Imaging AI & Digital Image Analysis	Digital Pathology Implementation, Strategy & Technology	Pharma/Biotech Case Studies
Day 2	Computational Pathology & AI	Applications and Research Case Studies	Pharma/Biotech Case Studies

- 65 strong senior level speaker faculty
- 35+ exhibition hall
- Expert-led roundtables and interactive panel sessions
- Unique academic, pharma and industry joint focus
- Over 7 hours of networking time
- A fantastic reputation as the number one Digital Pathology & AI conference series

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For more details contact Gavin Hambrook: gavin@globalengage.co.uk

CONFIRMED SPEAKERS



AHMED FADIEL

Director, Computational Oncology Unit, University of Chicago Comprehensive Cancer Center



ANDREW EVANS

Medical Director of Laboratory Medicine, Mackenzie Health



BRITTANY DUGGER

Associate Professor, Department of Pathology and Laboratory Medicine, UC Davis



CAROLYN GLASS

Associate Professor; Division Chief, Cardiovascular Pathology; Co-Director, Division of Artificial Intelligence and Computational Pathology, Duke University Medical Center



DARIUSZ BORYS

Professor of Pathology and Orthopedic Surgery, Chief of Orthopedic and Pediatric Pathology; Director of Digital Pathology Laboratory, Loyola University Chicago



DAVID GUTMAN

Assistant Professor, Biomedical Informatics, Emory University School of Medicine



DOUGLAS HARTMAN

Associate Professor of Pathology, Vice Chair of the Division of Pathology Informatics, University of Pittsburgh



FAISAL MAHMOOD

Assistant Professor of Pathology, Harvard Medical School



HIRANMAYI RAVICHANDRAN

Director of Spatial Biology, Weill Cornell Medicine



JASON HIPPI

Chair, Computational Pathology & AI, Mayo Clinic



KURT FARRELL

Assistant Professor, Pathology, Molecular and Cell Based Medicine, Mount Sinai



LASZLO IGALI

Consultant Histopathologist, Chair of the Informatics Committee, RCPATH, Norfolk and Norwich University Hospital, UK



MATTHEW HANNA

Director of Digital Pathology Informatics, Memorial Sloan Kettering Cancer Center



ORLY ARDON

Director Digital Pathology Operations, Memorial Sloan Kettering Cancer Center, USA



PETER SCHÖFFLER

Professor for Computational Pathology, Technical University of Munich, Germany



SHAHLA MASOOD

Professor and Chair, Department of Pathology and Laboratory Medicine, University of Florida College of Medicine - Jacksonville, UF Health Jacksonville



STEVEN HART

Senior Associate Consultant - Artificial Intelligence; Associate Professor of Biomedical Informatics, Department of Laboratory Medicine and Pathology and Department of Quantitative Health Sciences, Mayo College of Medicine



SUNIL SINGHAL

Chief of Digital Pathology Transformation, Baylor College of Medicine, USA



ALEX KLIMOWICZ

Senior Principal Scientist, Immunology and Respiratory Disease Research, Boehringer Ingelheim Pharmaceuticals



CARL BARRETT

VP, Translational Science, Oncology, AstraZeneca



CHIH-HONG WANG

Operations Manager, Pathology/DSP, Regeneron Pharmaceuticals, Inc



ERIK HAGENDORN

Senior Scientist, Informatics, Abbvie



MARK GUSTAVSON

Senior Director, Oncology Translational Medicine, AstraZeneca



NATHALIE FIASCHI

Senior Director, Oncology & Immune-Oncology; Head of the Clinical Histology Core (CHIC), Regeneron Pharmaceuticals, Inc



QING LI

Director of Pathology, Clinical Development, Oncology, Moderna



SHOH ASANO

Principal Scientist, Cellular & High-Content Imaging Technology Center, Pfizer



STEFAN HAMANN

Associate Scientific Director, Research Technology, Biogen



WEI ZHAO

Project Manager & Senior Data Scientist, Sanofi



HU SHENG QIAN

Senior Principal Scientist, Cardiometabolic Disease Research, Lab head of Imaging / Histology Core, Boehringer Ingelheim Pharmaceuticals



ANIL PARWANI

Professor of Pathology, Ohio State University



EYAS M HATTAB

AJ Miller Professor and Chair, Pathology and Laboratory Medicine, University of Louisville



ELENA DE MIGUEL

Associate Director, Non Clinical, UniQure



GIOVANNI LUJAN

Associate Professor & Director of Digital and Computational Pathology, Ohio State University



DAVID RIMM

Professor, Department of Pathology, Yale School of Medicine



APRIL KHADEMI

Associate Professor, Electrical, Computer and Biomedical Engineering, Toronto Metropolitan University, Canada



HARSH THAKER

Vice Chair of Digital and Integrative Pathology, Director of Anatomic Pathology



SUDHIR PERINCHERI

Assistant Professor, Department of Pathology, Yale School of Medicine



ERIC WIRCH

Chief Technology Officer, Corista LLC



ARMAN RAHMAN

Assistant Professor, UCD School of Medicine, Ireland



MENA MONSOUR

Assistant Professor, Pathology & Immunology, Section Head, Frozen Section, Washington University School of Medicine in St Louis



ERIC RUNDE

Chief Operating Officer, Indica Labs



TIN HTWE THIN

Assistant Professor, Department of Pathology, Biorepository and Pathology Core Laboratory of Mt. Sinai Dean's Core, Icahn School of Medicine at Mt. Sinai



JAMES THACKERAY

Chief Commercialization Officer, Lumea



RICK SALMON

Head of Life Science, FFEI



SAVITRI KRISHNAMURTHY

Deputy Division Head and Director for Clinical Trials Research and Development, MD Anderson Cancer Centre



BEN FREIBERG

Principal Informatics Systems Lead, Dev Sci Informatics, Genentech Inc.



RUTH SULLIVAN

Genentech Research and Early Development (gRED), Department of Safety Assessment, Genentech Inc.



SENIOR REPRESENTATIVE

Proscia

CONFIRMED SPEAKERS



SENIOR REPRESENTATIVE
Aiforia



SENIOR REPRESENTATIVE
Hamamatsu



SENIOR REPRESENTATIVE
Paige



SENIOR REPRESENTATIVE
Visiopharm



SENIOR REPRESENTATIVE
FDA



SENIOR REPRESENTATIVE
Histowiz

VENUE INFORMATION



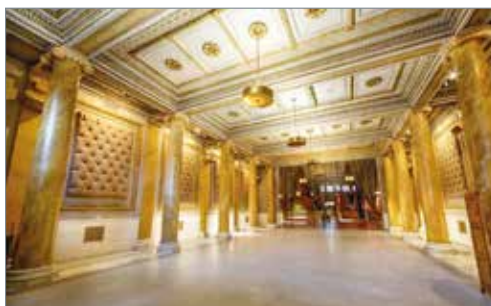
CAPITALE, NEW YORK

130 Bowery, New York, NY 10013

<https://capitaleny.com>

Rich with history Capitale was designed by Stanford White and built in 1893. The former Bowery Savings Bank and iconic New York City landmark has completed a \$1 million restoration of its illustrious neoclassical architecture.

It is located in vibrant downtown Manhattan.



Registration

7:30-8:30

Sponsored Breakfast Workshop Session

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8:50-9:00

Global Engage Welcome Address & Morning Chair's Opening Remarks

9:00-9:40

**KEYNOTE ADDRESS:
ANDREW EVANS**

Medical Director of Laboratory Medicine, Mackenzie Health

Deployment of Full Digital Pathology in Community Practice at Mackenzie Health

Mackenzie Health is a large and rapidly-growing 2-site community hospital in north Toronto. Three years prior to the opening of its brand new second hospital in 2021, senior leadership at Mackenzie Health committed to a strategic investment in Pathology and Laboratory Medicine which focused on the deployment of fully digital technology for surgical pathology. This presentation will cover the reasons why digital pathology was implemented at Mackenzie Health, as well as the methods used to validate the technology, ongoing quality management, data management, remote reporting, frozen section coverage and the added value digital pathology has brought during the COVID pandemic. The presentation will also cover how digital pathology is being leveraged to establish digital consultation networks and the introduction of artificial intelligence tools.

9:40-10:15

**KEYNOTE ADDRESS:
JASON HIPPI**

Chair, Computational Pathology & AI, Mayo Clinic

Building the future of computational pathology & AI at Mayo Clinic

10:15-10:45

**SENIOR REPRESENTATIVE**

Aiforia

Topic TBC

10:45-11:35

Morning Refreshments / Poster Presentations / One to One Meetings

IMAGING AI & DIGITAL IMAGE ANALYSIS

11:35-12:00

**STEVEN HART**

Senior Associate Consultant - Artificial Intelligence;
 Associate Professor of Biomedical Informatics,
 Department of Laboratory Medicine and Pathology
 and Department of Quantitative Health Sciences, Mayo
 College of Medicine

"All In" on a DICOM-centric Pathology Infrastructure

- Digital Pathology at scale is more than WSI Scanners
- Interoperability is a MUST
- Lesson's Learned from an Academic Medical Center's perspective

12:00-12:25

**FAISAL MAHMOOD**

Assistant Professor of Computational Pathology, Brigham
 and Women's Hospital and Harvard Medical School

AI-driven Multimodal Computational Pathology

Advances in digital pathology and artificial intelligence
 have presented the potential to build assistive tools for

objective diagnosis, prognosis and therapeutic-response and resistance prediction. In this talk we will discuss our work on: 1) Data-efficient methods for weakly-supervised whole slide classification with examples in cancer diagnosis and subtyping (Nature BME, 2021), and allograft rejection (Nature Medicine, 2022) 2) Harnessing weakly-supervised, fast and data-efficient WSI classification for identifying origins for cancers of unknown primary (Nature, 2021). 3) Discovering integrative histology-genomic prognostic markers via interpretable multimodal deep learning (IEEE TMI, 2020; ICCV, 2021; Cancer Cell, 2022). 4) Self-supervised deep learning for pathology and image retrieval (CVPR, 2022; Nature BME,

DIGITAL PATHOLOGY IMPLEMENTATION, STRATEGY & APPLICATIONS**PANEL DISCUSSION:****Optimise the Business case for Digital Pathology**

11:35-12:25

**SUNIL SINGHAL (Chair)**

Chief of Digital Pathology Transformation, Baylor
 College of Medicine, USA

**ORLY ARDON**

Director Digital Pathology Operations Memorial Sloan
 Kettering Cancer Center, USA

**EYAS M HATTAB**

AJ Miller Professor and Chair, Pathology and Laboratory
 Medicine, University of Louisville

PHARMA/ BIOTECH CASE STUDIES

11:35-12:00

**MARK GUSTAVSON**

Senior Director, Oncology Translational Medicine
 AstraZeneca

Computational Pathology - The next revolution in cancer diagnosis

- Computational Pathology allows for new methods for deep learning algorithms and improved scoring of IHC stained slides.
- Quantitative Continuous Scoring (QCS) was developed to both quantify target expression in individual tumors cells and to quantify spatial heterogeneity of expression
- Response to Antibody-Drug Conjugates (ADCs) is known to be driven by differences in target expression and heterogeneity; We will discuss application of QCS for predicting response to ADCs.

12:00-12:25

**NATHALIE FIASCHI**

Senior Director, Oncology & Immune-Oncology;
 Head of the Clinical Histology Core (CHiC), Regeneron
Optimizing a High throughput platform to phenotype human diseases with multiplex IHC and quantitative image analysis

Multiplex IHC is a powerful investigative tool to interrogate the tumor microenvironment and characterize human diseases in general. With well-designed and custom panels, one can define the cell composition, immune subsets, expression of targets of interest and their respective spatial distribution. In this presentation, we will describe how we did set up a high-throughput platform to analyze human tumor samples using multiplex IHC approaches. We will share our rationale for choosing one platform over others for high-throughput purposes. We will describe our workflow, which include assay validation, sample management, automated staining runs, image acquisition, image analysis and data analysis. We will mention the limitations and bottlenecks and how we optimized each step.

12:00-12:25

2022). 5) Deploying weakly supervised models in low resource settings without slide scanners, network connections, computational resources, and expensive microscopes. 6) Bias and fairness in computational pathology algorithms.



SENIOR REPRESENTATIVE

Proscia

12:25-12:55

Continued

Continued

12:00-12:25

12:25-12:55

11:35-12:25

12:25-12:40

12:40-12:55



ERIC RUNDE

Chief Operating Officer, Indica Labs

Towards Open Pathology with HALO AP®: A Diagnostic Digital Pathology Platform

In this presentation we introduce Indica Labs' efforts promoting open pathology through open standards such as OME and DICOM, while championing customer innovation by providing application programming interfaces and software development kits with our platforms. We introduce the HALO AP® platform for diagnostic digital pathology and discuss integrations with LIS | LIMS systems, image analysis and AI algorithms from Indica Labs and third-party vendors. We present a real-world case study where the Lunit SCOPE PD-L1 algorithm for non-small cell lung carcinoma is deployed via HALO AP for clinical use at Guardant Health as an example of an automated clinical workflow integrating AI algorithms with image management and LIMS systems.



JAMES THACKERAY

Chief Commercialization Officer, Lumea

Where Tissue Meets Tech: The Clinical Benefits and ROI in Digital Pathology Start Here

Prenatal issues are central to specimen integrity and molecular quality. To derive real value from digital pathology the journey has to start at the beginning - at the time of the biopsy. This talk will present a deep dive into prostate case studies demonstrating that when tissue handling technology precedes digital slides, there is an increase in the histologic tissue surface area, an increase in biopsy core lengths by 31.8%, and an increase in overall cancer detection rate by 9.3%. In addition to these significant tissue quality benefits, he will discuss the efficiency and cost savings realized in labs that adopt preanalytic tissue tech.



DAVID RIMM

Professor, Department of Pathology, Yale School of Medicine



12:55-2:15

Lunch / Workshops

1:15-2:15



LUNCH WORKSHOP SPONSOR: SENIOR REPRESENTATIVE

EpreDia



PETER SCHÖFFLER

Professor for Computational Pathology, Technical University of Munich, Germany
Multimodal imaging for AI

- Glioma can be subtyped into IDH1 mutated and 1p/19 codeleted subtypes
- These subtypes are hard to detect in radiology or pathology data, and sequencing is needed.
- We present a multimodal fusion AI model which detects the subtype of glioma based on both modalities.

2:15-2:40



ORLY ARDON

Director Digital Pathology Operations Memorial Sloan Kettering Cancer Center, USA

Implementation of Clinical Digital Pathology Operations at Memorial Sloan Kettering Cancer Center

- Digital pathology integration into clinical operations at Memorial Sloan Kettering Cancer Center (MSKCC) resulted in the analysis and the identification of quality management and efficiency improvement needs for the new workflows across the department.
- Multiple teams were involved in the development of a quality management system to support our digital scanning operations.
- Clinical digital pathology operations expansion continues to require ongoing analysis of workflows and the development of measures to ensure quality operations. The talk will share the lessons that were learned our large-scale digital pathology operation.

2:15-2:40



ERIK HAGENDORN

Senior Data Scientist, Computer Vision, Abbvie

CVIO: an open-source data access library for pathology computer vision tasks (PyTorch case study)

As the growth of commercial and open-source platforms for digital pathology continues to accelerate, the landscape of file formats for images and their associated annotation data remains siloed and unstandardized. This problem is compounded when curating data from multiple sources, and for machine learning practitioners it poses engineering challenges before model development can even begin. In this presentation we introduce CVIO, a highly extensible file I/O framework for computer vision tasks in Python. CVIO exposes an interface which performs data access for both images, and their associated annotation data. Following a high-level overview of the library, a case study using PyTorch to train a deep learning model will be presented.

2:15-2:40

**MATTHEW HANNA**

Director of Digital Pathology Informatics, Memorial Sloan Kettering Cancer Center

Validation of machine learning in clinical practice

Machine learning (ML) is becoming more apparent in

pathology practice. These systems using ML need to be properly verified/validated prior to clinical use. The aim of this session will be to review the steps for clinical validation and evaluate an example use case of an ML system used to detect metastatic breast carcinoma to lymph nodes.

2:40-3:05

**TIN HTWE THIN**

Assistant Professor, Department of Pathology, The Icahn School of Medicine at Mount Sinai

High-throughput workflow of deep learning, quantification and spatial analysis of tissue pathology on the digital image of sequential uninterrupted chromogenic multiplexed immunohistochemically stained single tissue section

The Biorepository and Pathology Dean's core laboratory at The Icahn School of Medicine at Mount Sinai provides bio-banking and tissue pathology services to the research community. The chromogenic multiplexed immunohistochemistry staining on a single slide is performed using the Ventana Discovery Ultra (Roche Diagnostics). The stained slide is scanned, using a NanoZoomer S210 (Hamamatsu), then the scanned image is analyzed, using HALO (Indica Labs, Inc). The individual chromogenic stains are separated, using color deconvolution of HALO-multiplex IHC module. Each cell within pathogenic tissue is nuclear segmented and a different class is identified with nuclear phenotype of HALO artificial intelligence. This presentation demonstrates several examples of digital technology practices on tissue pathogenesis as applied to clinical trials, translational research, and in-vivo model research studies.

3:05-3:30

**SENIOR REPRESENTATIVE**

Paige

3:30-4:00

**DOUGLAS HARTMAN**

Associate Professor of Pathology, Vice Chair of the Division of Pathology Informatics, University of Pittsburgh

Real World Lessons Learned from Two Digital Pathology Deployments

At our institution, we were one of the first academic centers to push the development and deployment of digital pathology. This first deployment ultimately was unsuccessful and we started over with a different strategy and have continued to learn lessons on this second deployment. We have now scanned nearly one million slides with this deployment and continue to adjust and evolve our practice toward a fully digital workflow. These adjustments have included the incorporation of automated image analysis and diagnostic support from machine learning/artificial intelligence tools. This talk will present the journey that we have been on and present how we have addressed challenges along the process.

2:40-3:05

**HARSH THAKER**

Vice Chair of Digital and Integrative Pathology, Director of Anatomic Pathology

Digital Pathology at UTMB: How a mid-sized academic pathology department went digital for primary diagnosis.

3:05-3:30

**SENIOR REPRESENTATIVE**

Hamamatsu

3:30-3:45

**RICK SALMON**

Head of Life Science, FFEI

A Pathology of Digitisation in Digital Pathology - Scanner Colour Standardisation and QA

- Digital pathology scanners do not reproduce the ground truth colour of tissue and vary in accuracy, visible in viewer platforms and relevant to AI reliability and scalability.
- Clear terminology and accessible metrics must be defined for colour QA, occurrence and severity in scanners must first be measured and then corrected for industry-wide QA.
- Methodology must enable all scanner users, AI developers and scanner manufacturers to utilise independently.
- Scanner colour validation and standardisation is essential for ongoing QA in digital pathology and AI.

3:45-4:00

**WEI ZHAO**

Project lead and Senior Data Scientist, Sanofi

Computer vision and deep learning in histopathology

- New method for protein biomarker expression level prediction
- Accelerate clinical trial recruitment
- Classification, object detection, segmentation, and other DL models in histopathology images

2:40-3:05

**STEFAN HAMANN**

Associate Scientific Director, Research Technology, Biogen

AI-assisted evaluation of SOD1 knockdown in motor neurons

Amyotrophic lateral sclerosis (ALS) is a progressive and ultimately fatal neurodegenerative disease, characterized by degeneration of neurons in spinal cord and brain. The most common form of hereditary ALS is caused by toxic gain-of-function superoxide dismutase 1 (SOD1) mutations. Thus, strategies such as antisense oligonucleotides or CRISPR-Cas9 have been developed to disrupt SOD1 expression. We have utilized AI-assisted cell segmentation in combination with RNA-ISH to measure SOD1 knockdown in histological sections. This approach has proven to be sensitive, specific and efficient in the evaluation of SOD1-ALS therapeutic strategies.

3:05-3:30

Solution Provider Presentation

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3:30-4:00

4:00-4:50

Afternoon Refreshments / Poster Presentations / One to One Meetings

4:50-5:20


SENIOR REPRESENTATIVE
 Histowiz

PANEL DISCUSSION:
Recent Advances and Innovation in Digital Pathology and AI

ANDREW EVANS (Chair)
 Medical Director of Laboratory Medicine,
 Mackenzie Health

ANIL PARWANI
 Professor of Pathology, Ohio State University

JASON HIPP
 Chair, Computational Pathology & AI, Mayo Clinic

5:20-6:10

4:50-5:20

Solution Provider Presentation

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BRITTANY DUGGER

 Associate Professor of Pathology and Laboratory
 Medicine; Neuropathology Core Co-leader, Alzheimer's
 Disease Research Center; Co-leader Machine Learning
 Working Group, University of California Davis

**Digital pathology and machine learning infrastructure within
 brain banks and lessons learned**

 Although there are established recommendations for adopting digital
 pathology systems in pathology departments, implementation and
 optimizing workflows can be challenging. In this talk, Dr. Dugger
 will go over current benchmarks reviewing data gleaned from
 Alzheimer's Disease Research Center Brain Banks. There will be
 an emphasis on infrastructure, funding sources, data management,
 and advice on formulating strategic partnerships as well as touching
 upon workflows for machine learning processes.

5:20-5:45


KURT FARRELL

 Assistant Professor, Department of Pathology,
 Icahn School of Medicine at Mount Sinai

**Computer Vision & Machine Learning in Digital
 Neuropathology**

 Classical approaches to disease staging in neuropathology have
 limited quantitative reproducibility. As such, there is a critical need
 for unbiased methods to quantitatively analyze pathological burden
 on the histological level. Artificial intelligence and machine learning
 algorithms generate highly accurate and precise computer vision
 assessments of digitized pathology slides, yielding novel histology
 metrics at scale. These quantitative metrics can be leveraged in
 genomic and transcriptomic studies to elucidate mechanisms driving
 neurodegeneration, as well as predict antemortem symptomatology.

5:45-6:10

4:50-5:20

Solution Provider Presentation

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ROUNDTABLE SESSION

 Roundtables are informal, small-group interactive discussions on
 key topics in the field. Discussion leaders will introduce sub-topics/
 questions for discussion and roundtable attendees are encouraged to
 participate actively in the session.

ROUNDTABLE 1:
**Application of digital pathology in daily clinical
 practice, research and education**
DARIUSZ BORYS

 Professor of Pathology and Orthopedic Surgery, Chief of
 Orthopedic and Pediatric Pathology; Director of Digital
 Pathology Laboratory, Loyola University Chicago

ROUNDTABLE 2:
Challenges when Transitioning to Digital pathology
PETER SCHÖFFLER

 Professor for Computational Pathology, Technical
 University of Munich, Germany
 We will discuss hurdles, challenges and their solutions.
 Use the opportunity to talk to your colleagues and share
 your experiences when going digital.

ROUNDTABLE 3:
Multiplex imaging technology applications
HIRANMAYI RAVICHANDRAN (Reserved)

 Director of Spatial Biology, Englander Institute of
 Precision Medicine, Weill Cornell Medicine

ROUNDTABLE 4:
Digital Pathology in Drug Development
QING LI (Reserved)

 Director of Pathology, Clinical Development,
 Oncology, Moderna

5:20-6:10

6:10-7:00

Networking Drinks Reception

7:00-8:00

Sponsored Dinner Workshop Session

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7:45-8:45

Sponsored Breakfast Workshop Session
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8:55-9:00

Morning Chair's Opening Remarks

9:00-9:35



**KEYNOTE ADDRESS:
GIOVANNI LUJAN**

Associate Professor & Director of Digital and Computational Pathology,
Ohio State University

Lessons Learned After 3 Years of Digital Workflow, The Ohio State Experience

- History of OSU digitalization, ups and downs
- Complete Digital Workflow, glassless and paperless
- Into the Next Frontier: Digital Pathology + AI = Computational Pathology

9:35-10:05

KEYNOTE ADDRESS:

STEPHEN HEWITT (Reserved)

Head, Experimental Pathology Laboratory, National Cancer Institute, NIH
Digital Pathology Case Study

10:05-10:35



ERIC WIRCH

Chief Technology Officer, Corista LLC

Integrated Pathology: Algorithmic Workflows Meet Enterprise Imaging



10:35-11:25

Morning Refreshments / Poster Presentations / One to One Meetings

COMPUTATIONAL PATHOLOGY & AI

11:25-11:50



DAVID GUTMAN

Assistant Professor, Biomedical Informatics, Emory
University School of Medicine

**Deep Learning Workflow for Scalable Detection of
Tau Inclusions in Digital Pathology**

Pathological hallmarks of Alzheimer's disease and related dementias include intraneuronal inclusions of hyper-phosphorylated tau. Manual detection and characterization of these and similar markers in glass slides or digital slides is not currently done at scale, due to the large number of them and the high degree of inter-rater disagreement in defining them visually. In this work we used a digital workflow for collecting annotations of tau inclusions to measure inter-rater agreement between neuropathology experts and novice participants. A novel computational workflow was then implemented to train annotator-specific models and ensemble models. Using state-of-the-art object detection models we show that these models approach consistent detection of tau inclusions comparable to human annotators, while adding scalability and consistency.

11:50-12:15

SAVITRI KRISHNAMURTHY

Deputy Division Head and Director for Clinical Trials Research and
Development, MD Anderson Cancer Centre

Computational Pathology & AI Case Study

DIGITAL PATHOLOGY STRATEGY & APPLICATIONS

11:25-11:50



HIRANMAYI RAVICHANDRAN

Director of Spatial Biology, Englander Institute of
Precision Medicine, Weill Cornell Medicine

**Unraveling the 'spatial distancing' between immune
compartments of COVID-19 infected tissues and post
COVID-19 using Imaging Mass Cytometry**

Deciphering the immune landscape in the COVID-19 infected lung tissue is necessary to understand the host response to the pathogen. Using a panel of 37 antibodies, Imaging mass cytometry was applied on infected, non-infected and post-COVID19 lung specimens to present the preliminary evidence of tissue dynamics in its spatial resolution. By observing the lung at unprecedented detail, we gain better understanding of both SARS-CoV-2 infected lesions and the process of lung healing which will enable and inform better management of the disease.

11:50-12:15

SENIOR REPRESENTATIVE

FDA

**Paving the way for adoption - Regulatory update and guidance
from the FDA on digital pathology**

PHARMA/ BIOTECH CASE STUDIES

11:25-11:50

RUTH SULLIVAN

Genentech Research and Early Development (gRED),
Department of Safety Assessment, Genentech Inc.

**Topic: A roadmap for building state-of-the-art digital
image data resources for toxicologic pathology in the
pharmaceutical industry**

11:50-12:15

BEN FREIBERG

Principal Informatics Systems Lead, Dev Sci Informatics, Genentech Inc

**Topic: Core software development for cloud image management
and peer-review within safety Department at Genentech**

12:15-12:45

Solution Provider Presentation

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12:45-1:00

POSTER WINNER TALK

Non-vendor Poster authors are invited to enter the competition which allows 3 winners a 15 minute presentation on the main program

12:15-12:45

Solution Provider Presentation

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12:45-1:00

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12:15-12:45

Solution Provider Presentation

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12:45-1:00

POSTER WINNER TALK

Non-vendor Poster authors are invited to enter the competition which allows 3 winners a 15 minute presentation on the main program

1:00-2:00

Lunch / Poster Presentations / One to One Meetings

2:00-2:30

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2:30-2:55

**CAROLYN GLASS**

Associate Professor; Division Chief, Cardiovascular Pathology; Co-Director, Division of Artificial Intelligence and Computational Pathology, Duke University Medical Center

Applications of Machine Learning and Computational Pathology in Thoracic Organ Transplantation and Immunology

- Review published machine learning applications within the cardiac transplantation computational and machine learning space.
- Review ongoing machine learning applications at Duke University Medical Center, one of the highest volume heart and lung transplant centers in the country.
- Discuss helpful practical steps for industry toward collaboration with academic centers.

2:00-2:30

Solution Provider Presentation

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gavin@globalengage.co.uk / +44 (0) 1865 849841

2:30-2:55

**LASZLO IGALI**

Consultant Histopathologist, Chair of the Informatics Committee, RCPATH, Norfolk and Norwich University Hospital, UK

Flying digital - in search of the perfect pathology cockpit

Digital pathology setup is highly personal, but we can learn a lot from aviation. The presentation will highlight the general principles and would give some ideas for optimising the workflow with a modular workstation and use of various elements of technology including AI.

2:00-2:30

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2:30-2:55

ALEKSANDRA ZURAW (Reserved)

Veterinary Pathologist, Charles River Laboratories; Publisher Digital Pathology Place

Toxicology Case Study

2:55-3:20

**AHMED FADIEL**

Director, Computational Oncology Unit, University of Chicago Comprehensive Cancer Center

AI / Machine Learning, Spatial Omics - Digital Pathology Case Study

We will explore how cancer immunotherapy can benefit from digital pathology (DP) and artificial intelligence (AI) integration. Will Present the University of Chicago's Computational Oncology Unit's developed cutting-edge computational digital pathology Project. This project uses AI and ML algorithms to improve diagnosis accuracy and predict treatment outcomes. The platform uses secure data management, encryption, and AI, all implemented using mainly R and Python. The presentation explores the journey from traditional microscopy to digital pathology, showcasing a new open-source platform and approach to holistic digital pathology. The importance of fully utilizing AI's power in DP data analysis and platform requirements in designing a successful computational digital pathology platform will be highlighted.

2:55-3:20

**SHAHLA MASOOD**

Professor and Chair, Department of Pathology and Laboratory Medicine, University of Florida College of Medicine - Jacksonville, UF Health Jacksonville

Telecytopathology and Rapid On-site Evaluation: A Point-of-Care Test

With increase in the number of minimally invasive procedures the need for rapid assessment of fine needle biopsy smears and imprint cytology of core needle biopsy at the site of the procedure are becoming an integral component of patient care. In addition, the growing numbers of off-site imaging facilities require access to distant interpretation of test results. With advance in digital imaging, it is now possible to provide rapid on-site evaluation (ROSE). This practice will provide a possibility for health care providers to learn about the possible diagnosis on each patient and to also limit the number of needle biopsies to the minimum. This approach is an extension of cytopathology practice to serve as a point-of-care testing that is cost effective and patient focused.

2:55-3:20

**CHIH-HONG WANG**

Operations Manager, Pathology/DSP, Regeneron Pharmaceuticals, Inc

Quantification of Hepatic Iron Levels in an iron overload mouse model Using Halo analysis

**APRIL KHADEMI**

Associate Professor, Electrical, Computer and Biomedical Engineering, Toronto Metropolitan University, Canada
An International Study of 110 Pathologists using AI for Ki-67 Assessment in Breast Cancer

3:20-3:45

**ARMAN RAHMAN**

Assistant Professor, UCD School of Medicine, Ireland
Prognostic Stratification of Low vs. High-Risk Breast Cancer Patients via Master Regulator Analysis (OncoMasTR) Using Digital Pathology and Image Analysis

Abstract: Significant progress has been made in the digital pathology arena, particularly in respect of brightfield and fluorescent imaging. Critically, the cellular context of molecular alterations occurring at DNA, RNA, or protein level within tumor tissue is now being more fully appreciated. Moreover, the emergence of novel multi-marker imaging approaches can now provide unprecedented insights into the tumor microenvironment, including the potential interplay between various cell types. POI's Tissue Imaging Platform is working to develop new tissue-based multiplexed tests that can predict personalized, risk-stratified treatment regimens across a variety of cancer tissue types. Dr. Rahman shares data on a novel prognostic signature encompassing a set of master transcriptional regulators (MTRs), termed OncoMasTR, along with immune infiltrates in the tumour microenvironment and its utility as biomarkers in early-stage breast cancer patients.

3:20-3:45

**SHOH ASANO**

Principal Scientist, Cellular & High-Content Imaging Technology Center, Pfizer
Identification and validation of a pro-fibrogenic macrophage population using cyclic immunofluorescence imaging

Cyclic immunofluorescence imaging was used to validate and visualize a scar-associated macrophage population which is linked to fibrosis across species and tissues. This talk will focus on the computational workflow and benefits of this approach for a pre-clinical discovery setting, as well as challenges associated with this technique.

3:20-3:45

SUDHIR PERINCHERI

Assistant Professor, Department of Pathology, Yale School of Medicine
Digital Pathology Case Study

3:45-4:10

**ELENA DE MIGUEL**

Associate Director, Non Clinical, UniQure
Overcoming the Challenge of Mouse Brain Mapping in Routine Histology Workflow

Using mouse brain mapping in histology presents a challenge of accurately registering brain sections to a common reference atlas due to potential shrinkage, deformation, and tearing of brain tissue during histological processing. Furthermore, the variability in tissue processing techniques, such as fixation, sectioning, and staining, can further complicate the alignment process. In our view, existing solutions do not account for real-life imperfect sections, and collecting thousands of annotated images to develop own atlas can be a challenge, especially in the fast-changing pharma industry. To tackle this problem, we collaborated with DeepMirror to develop a semantic segmentation model that can address the challenge of imperfect sections and small datasets. We would like to share our experience and findings in this talk.

3:45-4:10

**HU SHENG QIAN**

Senior Principal Scientist, Cardiometabolic Disease Research, Boehringer Ingelheim Pharmaceuticals, Inc
Strategy, challenges, and opportunity of digital pathology to support NASH drug discovery

- Strategy of supporting human disease link and evaluation of the therapeutic effect in NASH animal models
- Challenges in identification and quantification of new targets for NASH
- Opportunity of multi-omics and spatial biology to further support NTC

3:45-4:10

CARLOS CORDON-CARDO

Professor and System-Chair, Department of Pathology, Molecular and Cell Based Medicine; Senior Vice-President, Pathology and Laboratory Medicine, Icahn School of Medicine at Mount Sinai
Topic: Digital Pathology & Icahn School of Medicine at Mount Sinai

4:10-4:35

**MENA MONSOUR**

Assistant Professor, Pathology & Immunology, Section Head, Frozen Section, Washington University School of Medicine in St Louis

Fully digital frozen sign out: our experience at a large-sized academic institution and satellite hospitals
 Remote digital workflows have recently been implemented in multiple institutions to enhance efficiency and provide diagnostic services to remote locations. In this presentation we describe our experience in implementing a fully digital frozen service which includes remote gross examination of surgical specimens, digital slide review, and electronic transmission of written diagnoses to the operating room. We describe challenges and advantages of a fully digital frozen service in a large-sized hospital and multiple remote locations.

4:10-4:35

**ALEX KLIMOWICZ**

Senior Principal Scientist, Immunology and Respiratory Disease Research, Boehringer Ingelheim Pharmaceuticals, Inc
Defining the cellular composition of Crohn's Disease pathology using spatial proteomics

- Spatial proteomics technologies are on the cusp of revolutionizing the field of pathology, enabling single cell analysis of complex disease pathologies.
- We have applied a 38-plex IHC assay to the characterization of a cohort of ileal Crohn's disease tissue samples.
- Analysis of the cell type composition of the various histopathological features present in disease tissue contributes to a refined molecular and cellular definition of disease state pathology.

4:10-4:35

4:35

End of Conference

MAKING A POSTER PRESENTATION - CLOSING DATE MAY 27TH 2023

Poster presentation sessions will take place in breaks and alongside the other breakout sessions of the conference. Your presentation will be displayed in a dedicated area, with the other accepted posters from industry and academic presenters.

We also issue a poster eBook to all attendees with your full abstract in and can share your poster as a PDF after the meeting if you desire (optional).

Whether looking for funding, employment opportunities or simply wanting to share your work with a like-minded and focused group, these are an excellent way to join the heart of this congress.

In order to present a poster at the forum you need to be registered as a delegate. Please note that there is limited space available and poster space is assigned on a first come first served basis (subject to checks and successful registration)

SUBMISSION INSTRUCTIONS

We will require the form (downloadable from the event website) to be submitted by May 27th 2023. This is the formal deadline however space is another limiting factor so early application is recommended. Therefore please contact us with any questions you have as soon as possible.

POSTER COMPETITION

Three 15-minute speaking slots have been reserved on the Agenda for you to give an oral presentation of your research. Simply indicate that you would like your poster presentation to be submitted to the judging panel on the poster submission form.

The winning entries will be notified one week after the closing date above.

The competition is not open to representatives of organisations offering services and/or business & technology solutions or business consultants.

www.global-engage.com/event/digital-pathology-usa



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Venues with Sustainability Goals

We are committed to selecting venues with more sustainable practices. These will cover energy supply, food & waste, water use, recycling and plastics. The sustainability policies of the venues will be published on the meeting website.

Event App

We have reduced waste by replacing printed documentation with an app. Make sure you have it downloaded to your devices in time for the meeting. Get Agorify on [Google Play](#) and [Apple App Store](#).

Catering

You will have some great food choices while you are with us. We have worked with the caterer to increase the proportion of plant-based items. We have also built a plan with the venue to avoid waste through how they serve meals and how any leftovers are processed. Our aim is that you have some great meals, whilst with us, but with less environmental impact by the time you leave.

Travel

An international meeting does involve travel but where it is practical, please consider more sustainable alternatives to flying. The app will also have a discussion space to arrange ride shares.





DON'T DELAY, BOOK YOUR PLACE TODAY!

BOOKING

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maria@globalengage.co.uk

Our conference team will make all the necessary arrangements.

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For updates on the 9th Digital Pathology & AI Congress: USA, plus free resources and reports, as and when our speakers authorise their release dates, check for updates at:

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SPONSORSHIP AND EXHIBITION OPPORTUNITIES AVAILABLE

For more details contact Gavin Hambrook at

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