

Pacific Symposium on Biocomputing (PSB) 2025 Schedule
January 4-8, 2025 • Big Island of Hawaii

Friday, January 3, 2025

Registration

4:00-6:00	Registration	Ballroom Prefunction
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Saturday, January 4, 2025

Registration

7:30-9:00	Registration	Ballroom Prefunction
12:00-1:30	Registration	Ballroom Prefunction

Workshop #1 & #2

Plaza Ballroom

9:00-12:00	All Together Now: Data Work to Advance Privacy, Science, and Health in the Age of Synthetic Data Organizer: Lindsay Fernandez-Rhodes, Jennifer K. Wagner
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1:30 - 4:30	Command Line to PipeLine: Cross-Biobank Analyses with Nextflow Organizers: Anurag Verma, Lindsay Guare, Katie Cardone, Christopher Carson, Zachary Rodriguez
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Break

12:00-1:30	Lunch on own
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Workshop #3 & #4

Salon 2&3

9:00- 12:00	Opportunities and Pitfalls with Large Language Models for Biomedical Annotation Organizers: Fabio Rinaldi, Jin-Dong Kim, Zhiyong Lu, Cecilia Arighi
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1:30-4:30	Leveraging Foundational Models in Computational Biology: Validation, Understanding, and Innovation Organizers: Steven Brenner, Brett Beaulieu-Jones
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Reception

Turtle Pointe

5:00-6:00	Opening Reception Sponsored by the PSB Cochairs: Russ Altman, Larry Hunter, Teri Klein, Marylyn Ritchie
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Dinner

6:00-	Dinner on own
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October 21, 2024

Pacific Symposium on Biocomputing (PSB) 2025 Schedule
January 4-8, 2025 • Big Island of Hawaii

Sunday, January 5, 2025

Registration

7:30-9:30	Registration	Ballroom Prefunction
11:30-1:30	Registration	Ballroom Prefunction

Breakfast

7:30-8:30	PSB Breakfast	Ballroom Courtyard
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Welcome

8:30-8:45	Welcome – Teri Klein	Salon 2&3
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Session 1

	30 Years of PSB Impact	Salon 2&3
	Co-chairs: Larry Hunter, Teri Klein, Russ Altman, Marylyn Ritchie	
8:45-8:55	Introduction Larry Hunter	
8:55-9:15	<i>Precision Phenotyping: Distilling Signal from Noisy Real-World Data</i> Brett Beaulieu-Jones	
9:15-9:35	<i>Artificial Intelligence in Medicine - Chasing Illusions or Real Magic?</i> Jonathan Chen	
9:35-9:55	<i>Sequence models, then and now</i> Christina Leslie	
9:55 -10:15	<i>Building virtuous cycles between multi-omics and computational biology</i> Nancy Cox	
10:15-10:35	<i>Nullomers and freeing dozens from wrongful convictions: how PSB changed my life and others</i> Greg Hampikan	
10:35-10:55	<i>AI-driven next generation biotherapeutics</i> X. Shirley Lu	

Break

10:55-11:15	Break	Ballroom Courtyard
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Keynote

11:15-12:15	<i>Improving the Practice of Ambulatory Care: Bringing Biomedical Researchers into the Room Where it Happens</i> Kevin Johnson with introduction by Marylyn Ritchie	Salon 2&3
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Lunch

12:15-1:30	PSB Hosted Lunch	Ballroom Courtyard
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Invited Talk

1:30-2:00	<i>A View From NIGMS</i> Dr. Rochelle Long, NIH NIGMS	Salon 2&3
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Pacific Symposium on Biocomputing (PSB) 2025 Schedule
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Sunday, January 5, 2025 (continued)

Session 2

Overcoming Health Disparities in Precision Medicine

Co-chairs: Kathleen Barnes, Francisco De La Vega, Keolu Fox, Alexander Ioannidis, Eimear Kenny, Rasika Mattias, Bogdan Pasaniuc

2:00-2:10 Introduction

2:10-2:25 *Constructing a multi-ancestry polygenic risk score for uterine fibroids using publicly available data highlights need for inclusive genetic research*

Jessica L.G. Winters, Jacqueline A. Piekos, Jacklyn N. Hellwege, Ozan Dikilitas, Iftikhar J. Kullo, Daniel J. Schaid, Todd L. Edwards, Digna R. Velez Edwards

2:25-2:40 *Social Determinants of Health and Lifestyle Risk Factors Modulate Genetic Susceptibility for Women's Health Outcomes*

Lindsay A Guare, Jagyashila Das, Lannawill Caruth, Shefali Setia-Verma

2:40-2:55 *Social risk factors and cardiovascular risk in obstructive sleep apnea: a systematic assessment of clinical predictors in community health centers*

Diego R. Mazzotti, Ryan Urbanowicz, Marta Jankowska

2:55-3:10 *Detecting clinician implicit biases in diagnoses using proximal causal inference*

Kara Liu, Russ Altman, Vasilis Syrgkanis

3:10-3:25 *Spatial Clustering for Carolina Breast Cancer Study*

Hongqian Niu, Melissa Troester, Didong Li

3:25-3:40 *Assessment of Drug Impact on Laboratory Test Results in Hospital Settings*

Victorine P. Muse, Amalie D. Haue, Cristina L. Rodríguez, Alejandro A. Orozco, Jorge H. Biel, Søren Brunak

Discussion Session

Salon 2&3

3:40-4:40 **Overcoming Health Disparities in Precision Medicine**

Dinner

4:40- Dinner & Evening on own

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Pacific Symposium on Biocomputing (PSB) 2025 Schedule
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Monday, January 6, 2025

Registration		Ballroom Prefunction
7:30-8:30	Registration	
Breakfast		Ballroom Courtyard
7:30-8:30	PSB Breakfast	
Announcements		Salon 2&3
8:30-8:40	Morning Announcements – Russ Altman	
TERI Talks		Salon 2&3
8:40-9:10	Jonathan Haines, Cleveland Institute for Computational Biology	
9:10-9:40	Nigam Shah, Stanford University	
Session 2		Salon 2&3
	Precision Medicine: Multi-modal and multi-scale methods to promote mechanistic understanding of disease	
	Co-chairs: Yana Bromberg, Steven Brenner, Hannah Carter	
9:40-9:50	Introduction	
9:50-10:10	Invited Talk: Prerag Radivojac	
10:10-10:25	<i>Understanding TCR T cell knockout behavior using interpretable machine learning</i> <u>Marcus Blennemann</u> , Archit Verma, Stefanie Bachl, Julia Carnevale, Barbara E Engelhardt	
10:25-10:40	<i>A Pathway-Level Information Extractor (PLIER) framework to gain mechanistic insights into obesity in Down syndrome</i> Sutanu Nandi, Yuehua Zhu, Lucas A. Gillenwater, Marc Subirana-Granés, Haoyu Zhang, Negar Janani, Casey Greene, Milton Pividori, Maria Chikina, <u>James C. Costello</u>	
10:40-10:55	<i>Biologically Enhanced Machine Learning Model to uncover Novel Gene-Drug Targets for Alzheimer's Disease</i> <u>Alena Orlenko</u> , Mythreye Venkatesan, Li Shen, Marylyn D. Ritchie, Zhiping Paul Wang, Tayo Obafemi-Ajayi, Jason H. Moore	
10:55-11:10	<i>Identifying DNA methylation sites affecting drug response using electronic health record-derived GWAS summary statistics</i> <u>Delaney A. Smith</u> , Stephanie A. Arteaga, Marie C. Sadler, Russ B. Altman	
11:10-11:25	<i>Spherical Manifolds Capture Drug-Induced Changes in Tumor Cell Cycle Behavior</i> <u>Olivia Wen</u> , Samuel C. Wolff, Wayne Stallaert, Didong Li, Jeremy E. Purvis, Tarek M. Zikry	
11:25-11:40	<i>Astrocyte Reactivity Polygenic Risk Score May Predict Cognitive Decline in Alzheimer's Disease</i> <u>Jared M Phillips</u> , Julie A Schneider, David A Bennett, Paul K Crane, Shannon L Risacher, Andrew J Saykin, Logan C Dumitrescu, Timothy J Hohman; the Alzheimer's Disease Neuroimaging Initiative	
11:40-11:55	<i>Plasma protein-based and polygenic risk scores serve complementary roles in predicting inflammatory bowel disease</i> <u>Jakob Woerner</u> , Thomas Westbrook, Seokho Jeong, Manu Shivakumar, Allison R. Greenplate, Sokratis A. Apostolidis, Seunggeun Lee, Yonghyun Nam, Dokyoon Kim	
11:55-12:10	<i>Enhancing Privacy-Preserving Cancer Classification with Convolutional Neural Networks</i> <u>Aurora A. F. Colombo</u> , Luca Colombo, Alessandro Falcetta, Manuel Roveri	
12:10-12:25	<i>One-Versus-Others Attention: Scalable Multimodal Integration for Biomedical Data</i> <u>Michal Golovanevsky</u> , Eva Schiller, Akira Nair, Eric Han, Ritambhara Singh, Carsten Eickhoff	

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Monday, January 6, 2025 (continued)

Poster Session Lunch Salon 1 and Ballroom Courtyard

12:25-2:30 Poster Session with Lunch
 (Posters on ODD numbered boards presented from 1:00-1:45)
 (Posters on EVEN numbered boards presented from 1:45-2:30)

Meet & Greet

1:00-2:30 Meet with Dr Rochelle Long, NIH NIGMS Boardroom

Discussion Session

2:30-3:30 **Precision Medicine: Multi-modal and multi-scale methods to promote mechanistic understanding of disease** Salon 2&3

Workshop/Session

3:30-5:00 **Earth Friendly Computation: Applying Indigenous Data Lifecycles in Medical and Sovereign AI** Salon 2&3
 Co-chairs: Keolu Fox, Krystal Tsosie, Kaja Wasik, Alec Calac, Alexander Ioannidis, Eric T. Dawson

Dinner

5:00- Dinner & Evening on own

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Pacific Symposium on Biocomputing (PSB) 2025 Schedule
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Tuesday, January 7, 2025

Breakfast		Ballroom Courtyard
7:30-8:30	PSB Breakfast	

Announcements		Salon 2&3
8:30-8:40	Morning Announcements – Marylyn Ritchie	

TERI Talks		Salon 2&3
8:40-9:10	Francisco De La Vega, Galatea Bio	
9:10-9:40	Keolu Fox, University of California San Diego and Queens Hospital (Oahu)	

Session 3		Salon 2&3
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AI and Machine Learning in Clinical Medicine: Generative and Interactive Systems at the Human-Machine Interface

Co-chairs: Jonathan Chen, Roxana Daneshjou, Dokyoon Kim, Joseph D. Romano, Fateme Nateghi Haredasht, Geoff Tison

9:40-9:50	Introduction
9:50-10:10	Invited Talk: Su-In Lee
10:10-10:25	<i>A Visual Analytics Framework for Assessing Interactive AI for Clinical Decision Support</i> <u>Eric Prince</u> , Todd C. Hankinson, Carsten Görg
10:25-10:40	<i>QUEST-AI: A System for Question Generation, Verification, and Refinement using AI for USMLE-Style Exams</i> <u>Suhana Bedi</u> , Scott L. Fleming Chia-Chun Chiang, Keith Morse, Aswathi Kumar, Birju Patel, Jenelle A. Jindal, Conor Davenport, Craig Yamaguchi, Nigam H. Shah
10:40-10:55	<i>ReXErr: Synthesizing Clinically Meaningful Errors in Diagnostic Radiology Reports</i> <u>Vishwanatha M. Rao</u> , Serena Zhang, Julian N. Acosta, Subathra Adithan, Pranav Rajpurkar
10:55-11:10	<i>LLM-CGM: A Benchmark for Large Language Model-Enabled Querying of Continuous Glucose Monitoring Data for Conversational Diabetes Management</i> <u>Elizabeth Healey</u> , Isaac Kohane
11:10-11:25	<i>Artificial Allies: Validation of Synthetic Text for Peer Support Tools through Data Augmentation in NLP Model Development</i> <u>Josué Godeme</u> , Julia Hill, Stephen P. Gaughan, Wade J. Hirschbuhl, Amanda J. Emerson, Christian Darabos, Carly A. Bobak, Karen L. Fortuna
11:25-11:40	<i>A Prospective Comparison of Large Language Models for Early Prediction of Sepsis</i> <u>Supreeth P. Shashikumar</u> , Shamim Nemati
11:40-11:55	<i>Using Large Language Models for Efficient Cancer Registry Coding in the Real Hospital Setting: A Feasibility Study</i> <u>Chen-Kai Wang</u> , <u>Cheng-Rong Ke</u> , Ming-Siang Huang, Inn-Wen Chong, Yi-Hsin Yang, Vincent S. Tseng, Hong-Jie Dai
11:55-12:10	<i>Automated Evaluation of Antibiotic Prescribing Guideline Concordance in Pediatric Sinusitis Clinical Notes</i> <u>Davy Weissenbacher</u> , Lauren Dutcher, Mickael Boustany, Leigh Cressman, Karen O'Connor, Keith W. Hamilton, Jeffrey Gerber, Robert Grundmeier, Graciela Gonzalez-Hernandez
12:10-12:25	<i>Implications of An Evolving Regulatory Landscape on the Development of AI and ML in Medicine</i> <u>Nicole Rincon</u> , Sara Gerke, <u>Jennifer K. Wagner</u>

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Tuesday, January 7, 2025 (continued)

12:25-12:40	<i>ReXamine-Global: A Framework for Uncovering Inconsistencies in Radiology Report Generation Metrics</i> <u>Oishi Banerjee</u> , Agustina Saenz, Kay Wu, Warren Clements, Adil Zia, Dominic Buensalido, Helen Kavnoudias, Alain S. Abi-Ghanem, Nour El Ghawi, Cibebe Luna, Patricia Castillo, Khaled Al-Surimi, Rayyan A. Daghistani, Yuh-Min Chen, Heng-sheng Chao, Lars Heiliger, Moon Kim, Johannes Haubold, Frederic Jonske, Pranav Rajpurkar	
12:40-12:55	<i>PGxQA: A Resource for Evaluating LLM Performance for Pharmacogenomic QA Tasks</i> <u>Karl Keat</u> , Rasika Venkatesh, Yidi Huang, Rachit Kumar, Sony Tuteja, Katrin Sangkuhl, Binglan Li, Li Gong, Michelle Whirl-Carrillo, Teri E. Klein, Marylyn D. Ritchie, Dokyoon Kim	
Lunch		
1:00-2:00	Lunch on Own (Networking Time)	
Discussion Session		Salon 2&3
2:00-3:00	AI and Machine Learning in Clinical Medicine: Generative and Interactive Systems at the Human-Machine Interface	
Networking Time		
3:00-5:30	Afternoon on Own (Networking Time)	
Dinner		Coconut Grove
5:30-7:25	PSB Dinner Banquet	
Keynote		Coconut Grove
7:25-8:30	<i>People: Can't Live with Them and Can't Live without Them</i> Sharon Terry with introduction by Larry Hunter	

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Wednesday, January 8, 2025

Breakfast		Ballroom Courtyard
7:30-8:30	Breakfast	

Closing		Salon 2&3
8:30-8:40	Closing Announcements – Larry Hunter	

Session 5		Salon 2&3
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Translating Big Data Imaging Genomics Findings to the Individual: Prediction of Risks and Outcomes in Neuropsychiatric Illnesses

Co-chairs: Peter Kochunov, Li Shen, Paul M. Thompson, Zhongming Zhaoey

8:40-8:50 Introduction

8:50-9:10 Invited Talk: Duygu Tosun-Turgut

9:10-9:25 *Electronic Health Record Analysis for Personalized Medicine: Predicting Malnutrition- Related Health Outcomes and Secondary Neuropsychiatric Health Concerns*

Pinar Gurkas, Gunnur Karakurt

9:25-9:40 *Unsupervised Dimensionality Reduction Techniques for the Assessment of ASD Biomarkers*

Zachary Jacokes, Ian Adoremos. Arham Hussain, Benjamin Newman, Kevin Pelphrey, John Van Horn, ACE GENDAAR Consortium

9:40-9:55 *Uncovering Important Diagnostic Features for Alzheimer's, Parkinson's and Other Dementias Using Interpretable Association Mining Methods*

Kazi Noshin, Mary Regina Boland, Bojian Hou, Victoria Lu, Carol Manning, Li Shen, Aidong Zhangaa

9:55-10:10 *Exploring the Granularity of the Illnesses-Related Changes in Regional Homogeneity in Major Depressive Disorder using the UKBB Data*

Yewen Huang, Syed Ibrar Hussain, Demetrio Labate, Robert Azencott, Paul Thompson, Bhim Adhikari, Peter Kochunov

10:10-10:25 *Multi-modal Imaging-based Pseudotime Analysis of Alzheimer progression*

Armand Bing He, Shu Zhang, Shannon L. Risacher and Andrew J. Saykin, Jingwen Yan

Discussion Session		Salon 2&3
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10:25-11:25	Translating Big Data Imaging Genomics Findings to the Individual: Prediction of Risks and Outcomes in Neuropsychiatric Illnesses
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PSB over--see you next year!

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