Pacific Symposium on Biocomputing (PSB) 2024 Schedule
January 3-7, 2024 Big Island of Hawaii

**Tuesday, January 2, 2024**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:00</td>
<td>Registration</td>
</tr>
<tr>
<td>6:00</td>
<td>Registration</td>
</tr>
</tbody>
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**Wednesday, January 3, 2024**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>7:30</td>
<td>Registration</td>
</tr>
<tr>
<td>9:00</td>
<td>Workshop #1 &amp; #2</td>
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<tr>
<td>9:00</td>
<td>Statistical Analysis of Single-Cell Protein Data</td>
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<tr>
<td>1:30</td>
<td>Tools for assembling the cell: Towards the era of cell structural bioinformatics</td>
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<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:00</td>
<td>Lunch on own</td>
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**Workshop #3 & #4**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>9:00</td>
<td>Risk prediction: Methods, Challenges, and Opportunities</td>
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<tr>
<td>1:30</td>
<td>Practical Approaches to Enhancing Fairness, Social Responsibility and the Inclusion of Diverse Viewpoints in Biomedicine</td>
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<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>5:00</td>
<td>Reception</td>
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<tr>
<td>6:00</td>
<td>Dinner</td>
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*Please wear your PSB name tag and lanyard for admission to all events and hosted meals.*

October 25, 2023
**Thursday, January 4, 2024**

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

### Breakfast
7:30-8:45  PSB Breakfast  Ballroom Courtyard  

### Welcome
8:45-9:00  Welcome – Teri Klein  

### Session 1

**Artificial Intelligence in Clinical Medicine: Generative and Interactive Systems at the Human-Machine Interface**  
Co-chairs: Jonathan Chen, Roxana Daneshjou, David Ouyang, Emma Pierson, Ivana Jankovic, Sajjad Fouladvand

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>9:00-9:10</td>
<td>Introduction</td>
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</tbody>
</table>
Alejandro Lozano, Scott L Fleming, Chia-Chun Chiang, Nigam Shah  |
| 9:25-9:40 | A Conversational Agent for Early Detection of Neurotoxic Effects of Medications through Automated Intensive Observation  
Serguei Pakhomov, Jacob Solinsky, Martin Michalowski, Veronika Bachanova  |
| 9:40-9:55 | Leveraging 3D Echocardiograms to Evaluate AI Model Performance in Predicting Cardiac Function on Out-of-Distribution Data  
Grant Duffy, Kai Christensen, David Ouyang  |
| 9:55-10:10 | BrainSTEAM: A Practical Pipeline for Connectome-based fMRI Analysis  
Alexis Li, Yi Yang, Hejie Cui, Carl Yang  |
| 10:10-10:25 | MaTiLDA: An Integrated Machine Learning and Topological Data Analysis Platform for Brain Network  
Katrina Prantzalos, Dipak Upadhyaya, Nassim Shafieibadi, Guadalupe Fernandez-BacaVaca, Nick Gurski, Kenneth Yoshimoto, Subhashini Sivagnanam  |
| 10:25-10:40 | Zoish: A Novel Feature Selection Approach Leveraging Shapley Additive Values for Machine Learning Applications in Healthcare  
Hossein Javedani Sadaei, Salvatore Loguercio, Mahdi Shafiei Neyestanak, Ali Torkamani  |
| 10:40-10:55 | SynTwin: A graph-based approach for predicting clinical outcomes using digital twins derived from synthetic patients  
Jason H. Moore, Xi Li, Jui-Hsuan Chang, Nicholas P. Tattonetti, Dan Theodorescu, Yong Chen, Folkert W. Asselbergs, Mythreye Venkatesan, Zhiping Paul Wang  |
| 10:55-11:10 | Optimizing Computer-Aided Diagnosis with Cost-Aware Deep Learning Models  
Charmi Patel, Yiyang Wang, Thiruvarangan Ramaraj, Roselyne Tchoua, Jacob Furst, Daniela Raicu  |

### Keynote

11:20-12:30  **The Age of Phenomics**  
Scott Penberthy with introduction by Teri Klein  

### Lunch

12:30-1:30  PSB Hosted Lunch  Ballroom Courtyard  

### Discussion Session

1:30-2:30  **Artificial Intelligence in Clinical Medicine: Generative and Interactive Systems at the Human-Machine Interface**

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**Please wear your PSB name tag and lanyard for admission to all events and hosted meals.**

October 25, 2023
Thursday, January 4, 2024 (continued)

<table>
<thead>
<tr>
<th>Workshop #5</th>
<th>Salon 2&amp;3</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:30-5:30</td>
<td><strong>Large Language Models (LLMs) and ChatGPT for Biomedicine</strong>&lt;br&gt;Organizers: Zhiyong Lu, Steven Brenner, Cecilia Arighi</td>
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</tbody>
</table>

Dinner<br>5:30- Dinner & Evening on own

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October 25, 2023
Friday, January 5, 2024

Registration  Ballroom Prefunction
7:30-8:30  Registration

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

Announcements
8:30-8:40  Morning Announcements – Russ Altman

TERI Talks
8:40-9:10  Rochelle Long, NIH National Institutes of General Medical Science
9:10-9:40  Alex Morgan, Khosla Ventures

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
9:40-9:55  Introduction
9:55-10:15  Invited Talk: TBD
10:15-10:30  PopGenAdapt: Semi-Supervised Domain Adaptation for Genotype-to-Phenotype Prediction in Underrepresented Populations
  Marçal Comajoan Cara, Daniel Mas Montserrat, Alexander G. Ioannidis
10:30-10:45  LA-GEM: imputation of gene expression with incorporation of Local Ancestry
  Mrinal Mishra, Layan Nahlawi, Yizhen Zhong, Tanima De, Guang Yang, Cristina Alarcon, Minoli A Perera
10:45-11:00  Cluster Analysis reveals Socioeconomic Disparities among Elective Spine Surgery Patients
  Alena Orlenko, Philip J. Freda, Attrii Ghosh, Hyunjun Choi, Nicholas Matsumoto, Tiffani J. Bright, Corey T. Walker, Tayo Obafemi-Ajayi, Jason H. Moore
11:00-11:15  Evidence of recent and ongoing admixture in the U.S. and influences on health and disparities
  Hannah M. Seagle, Jacklyn N. Hellwege, Brian S. Mautz, Chun Li, Yaomin Xu, Siwei Zhang, Dan M. Roden, Tracy L. McGregor, Digna R. Velez Edwards, Todd L. Edwards
11:15-11:30  Evaluating the relationships between genetic ancestry and the clinical phenome
  Jacqueline A. Piekos and Jeewoo Kim, Jacob M. Keaton, Jacklyn N. Hellwege, Todd L. Edwards and Digna R. Velez Edwards

Discussion Session
11:30-12:30  Overcoming Health Disparities in Precision Medicine

Poster Session Lunch
12:30-2:30  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)

Session 3

Digital health technology data in biocomputing: Research efforts and considerations for expanding access
Co-chairs: Michelle Holko, Jessilyn Dunn, Chris Lunt
2:30-2:40  Introduction
2:40-3:00  Invited Talk: Vik Kheterpal
3:00-3:15  Expanding the access of wearable silicone wristbands in community-engaged research through best practices in data analysis and integration
  Lisa M. Bramer, Holly M. Dixon, David J. Degnan, Diana Rohlman, Julie B. Herbstman, Kim A. Anderson, Katrina M. Waters

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## Friday, January 5, 2024 (continued)

### Session 3

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>3:15-3:30</td>
<td><strong>Subject Harmonization of Digital Biomarkers: Improved Detection of Mild Cognitive Impairment from Language Markers</strong>&lt;br&gt;Bao Hoang, Yijiang Pang, Hiroko Dodge, Jiayu Zhou</td>
</tr>
<tr>
<td>3:30-3:45</td>
<td><strong>Scalar-Function Causal Discovery for Generating Causal Hypotheses with Observational Wearable Device Data</strong>&lt;br&gt;Valeriya Rogovchenko, Austin Sibu, Yang Ni</td>
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<tr>
<td>3:45-4:45</td>
<td><strong>Digital health technology data in biocomputing: Research efforts and considerations for expanding access</strong></td>
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<tr>
<td>4:45-</td>
<td><strong>Dinner &amp; Evening on own</strong></td>
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October 25, 2023
Pacific Symposium on Biocomputing (PSB) 2024 Schedule  
January 3-7, 2024 Big Island of Hawaii

Saturday, January 6, 2024

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

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

TERI Talks  
8:40-9:10  Michelle Whirl-Carrillo, Stanford University  
Salon 2&3
9:10-9:40  Sean Mooney, University of Washington  
Salon 2&3

Session 4  
Salon 2&3

Precision Medicine: Innovative methods for advanced understanding of molecular underpinnings of disease  
Co-chairs: Yana Bromberg, Hannah Carter, Steven E. Brenner  

9:40-9:50  Introduction  

9:50-10:10  Invited Talk: William Noble  

10:10-10:25  Enhancing Spatial Transcriptomics Analysis by Integrating Image-Aware Deep Learning Methods  
Jiarong Song, Josh Lamstein, Vivek Gopal Ramaswamy, Michelle Webb, Gabriel Zada, Steven Finkbeiner, David W. Craig  

10:25-10:40  Spatial Omics Driven Crossmodal Pretraining Applied to Graph-based Deep Learning for Cancer Pathology Analysis  
Zarif L. Azher, Michael Fatemi, Yunrui Lu, Gokul Srinivasan, Alos B. Diallo, Brock C. Christensen, Lucas A. Salas, Fred W. Kolling IV, Laurent Perrard, Scott M. Palisoul, Louis J. Vaickus, Joshua J. Levy  

10:40-10:55  Potential to Enhance Large Scale Molecular Assessments of Skin Photoaging through Virtual Inference of Spatial Transcriptomics from Routine Staining  

10:55-11:10  PEPSI: Polarity measurements from spatial proteomics imaging suggest immune cell engagement  
Eric Wu, Zhenqin Wu, Aaron T. Mayer, Alexandro E. Trevino, James Zou  

11:10-11:25  KombOver: Efficient k-core and K-truss based characterization of perturbations within the human gut microbiome  
Nicolae Sapoval, Marko Tanevski, Todd J. Treangen  

11:25-11:40  nSEA: n-Node Subnetwork Enumeration Algorithm Identifies Lower Grade Glioma Subtypes with Altered Subnetworks and Distinct Prognostics  
Zhihan Zhang, Christiana Wang, Ziyin Zhao, Ziyue Yi, Arda Durmaz, Jennifer S. Yu, Gurkan Bebek  

11:40-11:55  Application of quantile discretization and Bayesian network analysis to publicly available cystic fibrosis data sets  
Kiyoshi Ferreira Fukutani, Thomas H. Hampton, Carly A. Bobak, Todd A. MacKenzie, Bruce A. Stanton  

11:55-12:10  Low- and high-level information analyses of transcriptome connecting endometrial-decidual-placental origin of preeclampsia subtypes: A preliminary study  
Herdiantri Sufriyana, Yu-Wei Wu, Emily Chia-Yu Su  

12:10-12:25  Deconvolution of Nascent Sequencing Data Using Transcriptional Regulatory Elements  
Zachary Maas, Rutendo Sigauke, Robin Dowell

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October 25, 2023
**Saturday, January 6, 2024 (continued)**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session 4</th>
<th>Location</th>
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<tbody>
<tr>
<td>12:25-12:40</td>
<td><em>Splitpea: quantifying protein interaction network rewiring changes due to alternative splicing in cancer</em></td>
<td>Salon 2&amp;3</td>
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<tr>
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<td>Ruth Dannenfelser, Vicky Yao</td>
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<tr>
<td>Lunch</td>
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<tr>
<td>12:40-2:00</td>
<td>Lunch on Own (Networking Time)</td>
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<tr>
<td>Discussion Session</td>
<td><em>Precision Medicine: Innovative methods for advanced understanding of molecular underpinnings of disease</em></td>
<td>Salon 2&amp;3</td>
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<tr>
<td>2:00-3:00</td>
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<tr>
<td>Break</td>
<td></td>
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<tr>
<td>3:00-5:30</td>
<td>Afternoon on Own (Networking Time)</td>
<td>Coconut Grove</td>
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<tr>
<td>Dinner</td>
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<tr>
<td>5:30-7:25</td>
<td>PSB Dinner Banquet</td>
<td>Coconut Grove</td>
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<tr>
<td>Keynote</td>
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<tr>
<td>7:25-8:30</td>
<td><em>Machine Accusers: The Right to Confront Witnesses in an Age of AI</em></td>
<td>Coconut Grove</td>
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<td></td>
<td>Andrea Roth with introduction by Russ Altman</td>
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October 25, 2023
## Sunday, January 7, 2024

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>7:30-8:30</td>
<td>Breakfast</td>
<td>Ballroom Courtyard</td>
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<tr>
<td>8:30-8:40</td>
<td>Closing Announcements – Larry Hunter</td>
<td>Salon 2&amp;3</td>
</tr>
<tr>
<td>8:40-8:50</td>
<td>Session 5</td>
<td>Salon 2&amp;3</td>
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### Drug-repurposing and discovery in the era of “big” Real-World Data: how the incorporation of observational data, genetics, and other -omic technologies can move us forward

**Co-chairs:** Todd Edwards, Nikhil Khankari, Jacklyn Hellwege, Marijana Vujkovic, Megan Shuey

- **8:40-8:50** Introduction
- **8:50-9:05** *Systematic Estimation of Treatment Effect on Hospitalization Risk as a Drug Repurposing Screening Method*
  - Costa Georganatas, Jaume Banus, Roger Hullin, Jonas Richardi
- **9:05-9:20** *Transcript-aware analysis of rare predicted loss-of-function variants in the UK Biobank elucidate new isoform-trait associations*
  - Rachel A. Hoffing, Aimee M. Deaton, Aaron M. Holleman, Lynne Krohn, Philip J. LoGerfo, Mollie E. Plekan, Sebastian Akle Serrano, Paul Nioi, Lucas D. Ward
- **9:20-9:35** *Generating new drug repurposing hypotheses using disease-specific hypergraphs*
  - Ayush Jain, Marie-Laure Charpignon, Irene Y. Chen, Anthony Philippakis, Ahmed Alaa
- **9:35-9:50** *Combined kinome inhibition states are predictive of cancer cell line sensitivity to kinase inhibitor combination therapies*
  - Chinmaya U. Joisa, Kevin A. Chen, Samantha Beville, Timothy Stuhlmiller, Matthew E. Berginski, Denis Okumu, Brian T. Golitz, Michael P. East, Gary L. Johnson, Shawn M. Gomez
- **9:50-10:05** *Creation of a Curated Database of Experimentally Determined Human Protein Structures for the Identification of Its Targetome*
  - Armand Ovanessians, Carson Snow, Thomas Jennewein, Susanta Sarkar, Gil Speyer, Judith Klein-Seetharaman
- **10:05-10:20** *Modeling Path Importance for Effective Alzheimer’s Disease Drug Repurposing*
  - Shunian Xiang, Patrick J. Lawrence, Bo Peng, ChienWei Chiang, Dokyoon Kim, Li Shen, Xia Ning

### Discussion Session

**10:20-11:20** Drug-repurposing and discovery in the era of “big” Real-World Data: how the incorporation of observational data, genetics, and other -omic technologies can move us forward

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*PSB over—see you next year!*