

Pacific Symposium on Biocomputing (PSB) 2020 Schedule

January 3-7, 2020, Fairmont Orchid, Big Island of Hawaii

Friday, January 3, 2020

7:30 – 9:30 am
9:00 – Noon

Registration ([Ballroom Prefunction](#))
[Workshop](#) – AI Ethics and Values in Biomedicine – Technical Challenges and Solutions ([Salon 2&3](#))
Packaging Biocomputing Software to Maximize Distribution and Reuse ([Plaza](#))

Organizers: Dragutin Petkovic, Lester Kobzik, Reza Ghanadan

Organizers: William S. Bush, Nicholas Wheeler, Brett Beaulieu-Jones, Christian Darabos

Noon – 1:30 pm
Noon – 2:00 pm
1:30 – 4:30 pm

[Break](#) – Lunch on own
Registration ([Ballroom Prefunction](#))
[Workshop](#) – Navigating Ethical Quandaries with the Privacy Dilemma of Biomedical Datasets ([Salon 2&3](#))

Organizers: Gamze Gursoy, Megan Doerr, Steven E. Brenner, Haixu Tang, John Wilbanks, Jennifer K. Wagner

Organizer: Ian Holmes

1:30 – 3:00 pm

[Birds of a Feather Working Group Meeting \(all invited\)](#) - JBrowse – Hands-On Session ([Plaza](#))

4:30 – 5:00 pm
5:00 – 5:30 pm
5:00 – 6:00 pm

[Break](#)
Registration ([Croquet Lawn](#))
[Reception](#) - 25th Anniversary Reception including PSB group photo
Sponsored by the Cleveland Institute for Computational Biology ([Croquet Lawn](#))

6:00 –

[Break](#) – Dinner & evening on own

Saturday, January 4, 2020

7:30 – 9:00 am
7:30 – 8:45 am
8:30 – 8:40 am

Registration ([Ballroom Prefunction](#))
[PSB Breakfast](#) ([Ballroom Courtyard](#))
Welcome ([Salon 2&3](#))
[Session 1: Artificial Intelligence for Enhancing Clinical Medicine](#)

Co-chairs: Roxana Daneshjou, Olga Afanasiev, Lukasz Kidziński, Jonathan Chen

8:40 – 8:50 am
8:50 – 9:05 am

Introduction
Robustly Extracting Medical Knowledge from EHRs: A Case Study of Learning a Health Knowledge Graph

[Irene Y. Chen](#), Monica Agrawal, Steven Horng, David Sontag

9:05 – 9:20 am

Predicting Longitudinal Outcomes of Alzheimer's Disease via a Tensor-Based Joint Classification and Regression Model

Lodewijk Brand, Kai Nichols, [Hua Wang](#), Heng Huang, Li Shen, for the ADNI

9:20 – 9:35 am

Monitoring ICU Mortality Risk with a Long Short-Term Memory Recurrent Neural Network

[Ke Yu](#), Mingda Zhang, Tianyi Cui, Milos Hauskrecht

9:35 – 9:50 am

Addressing the Credit Assignment Problem in Treatment Outcome Prediction Using Temporal Difference Learning

[Sahar Harati](#), Andrea Crowell, Helen Mayberg, Shamim Nemat

9:50 - 10:05 am

From Genome to Phenome: Predicting Multiple Cancer Phenotypes Based on Somatic Genomic Alterations via the Genomic Impact Transformer

[Yifeng Tao](#), Chunhui Cai, William W. Cohen, Xinghua Lu

10:05 – 10:20 am

Automated Phenotyping of Patients with Non-Alcoholic Fatty Liver Disease Reveals Clinically Relevant Disease Subtypes

[Maxence Vandromme](#), Tomi Jun, Ponni Perumalswami, Joel T. Dudley, Andrea Branch, Li Li

10:20 – 10:35 am

Increasing Clinical Trial Accrual via Automated Matching of Biomarker Criteria

[Jessica W. Chen](#), Christian A. Kunder, Nam Bui, James L. Zehnder, Helio A. Costa, Henning Stehr

10:30 – 11:30 am

Registration ([Ballroom Prefunction](#))

10:35 – 10:50 am

[Break](#)

10:50 – Noon

[Keynote](#): Carole Goble

12:00 – 1:00 pm

Registration ([Ballroom Prefunction](#))

12:00 – 1:15 pm

PSB Hosted Lunch ([Ballroom Courtyard](#))

1:30 – 4:30 pm

[Workshop](#) - Translational Bioinformatics

Workshop: Biobanks in the Precision Medicine Era

Introduction by Larry Hunter

Co-chairs: Marylyn Ritchie, Jason Moore, Ju Han Kim

4:30 -

[Break](#) – Dinner & evening on own

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Sunday, January 5, 2020

7:30 – 8:30 am	Registration (Ballroom Prefunction)	
7:30 – 8:45 am	PSB Breakfast (Ballroom Courtyard)	
8:30 – 8:40 am	Morning Announcements (Salon 2&3)	
	TERI Talks (Salon 2 & 3)	
8:40 – 9:10 am	Steven Brenner, University of California, Berkeley	
9:10 – 9:40 am	Greg Hampikian, Boise State University	
	Session 2: Precision medicine: addressing the challenges of sharing, analysis, and privacy at scale	Co-chairs: Steven E. Brenner, Martha V. Bulyk, Dana C. Crawford, Alexander A. Morgan, Predrag Radivojac, Nicholas Tatonetti
9:45 – 9:55 am	Introduction	
9:55 – 10:15 am	Invited Talk	Kristin Lauter
10:15 – 10:30 am	Integrated Cancer Subtyping using Heterogeneous Genome-Scale Molecular Datasets	Suzan Arslanturk, Sorin Draghici , Tin Nguyen
10:30 – 10:45 am	Assessment of coverage for endogenous metabolites and exogenous chemical compounds using an untargeted metabolomics platform	Sek Won Kong , Carles Hernandez-Ferrer
10:45 – 11:00 am	Coverage profile correction of shallow-depth circulating cell-free DNA sequencing via multi-distance learning	Nicholas B. Larson , Melissa C. Larson, Jie Na, Carlos P. Sosa, Chen Wang, Jean-Pierre Kocher, Ross Rowsey
11:00 – 11:15 am	PGxMine: Text mining for curation of PharmGKB	Jake Lever , Julia M. Barbarino, Li Gong, Rachel Huddart, Katrin Sangkuhl, Ryan Whaley, Michelle Whirl-Carrillo, Mark Woon, Teri E. Klein and Russ B. Altman
11:15 – 11:30 am	Break	
11:30 – 11:45 am	The power of dynamic social networks to predict individuals' mental health	Shikang Liu , David Hachen, Omar Lizardo, Christian Poellabauer, Aaron Striegel, Tijana Milenkovic
11:45 – 12:00	Implementing a Cloud Based Method for Protected Clinical Trial Data Sharing	Gaurav Luthria , Qingbo Wang
12:00 - 12:15 pm	Pathway and network embedding methods for prioritizing psychiatric drugs	Yash Pershad , Margaret Guo, Russ B. Altman
12:15 – 12:30 pm	Robust-ODAL: Learning from heterogeneous health systems without sharing patient-level data	Jiayi Tong , Rui Duan, Ruowang Li, Martijn J. Scheuemie, Jason H. Moore, Yong Chen
12:30 – 12:45 pm	Computationally efficient, exact, covariate-adjusted genetic principal component analysis by leveraging individual marker summary statistics from large biobanks	Jack Wolf, Martha Barnard, Xueting Xia, Nathan Ryder, Jason Westra, Nathan Tintle
12:45 – 2:30 pm	Poster Session with Lunch Salon 1 and Ballroom Courtyard <i>Food available 12:45-2:00; drinks until 2:30.</i>	ODD numbered boards presented from 1:00-1:45 EVEN numbered boards presented from 1:45-2:30
2:30 – 4:30 pm	Discussion Session (Salon 2&3) Joint Discussion Session: Artificial Intelligence for Enhancing Clinical Medicine and Precision medicine: addressing the challenges of sharing, analysis, and privacy at scale	
4:30 – 5:00 pm	Parasite & Symbiont Awards (Salon 2&3)	
5:00 -	Break – Dinner & evening on own	

Monday, January 6, 2020

7:30 – 8:45 am	PSB Breakfast (Ballroom Courtyard)	
8:30 – 8:40 am	Morning Announcements (Salon 2&3)	
8:40 – 11:10 am	Session 3: Pattern Recognition in Biomedical Data: Challenges in Putting Bis Data to Work (Salon 2&3)	Co-chairs: Brett Beaulieu-Jones, Christian Darabos, Dokyoon Kim, Shilpa Kobren, Anurag Verma
8:40 – 8:50 am	Introduction	
8:50 – 9:10 am	Invited Talk	Gabriel Brat

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Monday, January 6 (cont.)

9:10 – 9:25 am	Clinical Concept Embeddings Learned from Massive Sources of Multimodal Medical Data	Andrew L. Beam, <u>Benjamin Kompa</u> , Allen Schmaltz, Inbar Fried, Griffin Weber, Nathan Palmer, Xu Shi, Tianxi Cai, Isaac S. Kohane <u>Jie Hao</u> , Sai Chandra Kosaraju, Nelson Zange Tsaku, Dae Hyun Song, Mingon Kang
9:25 – 9:40 am	PAGE-Net: Interpretable and Integrative Deep Learning for Survival Analysis Using Histopathological Images and Genomic Data	
9:40 – 9:55 am	Microvascular Dynamics from 4D Microscopy Using Temporal Segmentation	Shir Gur, <u>Lior Wolf</u> , Lior Golgher, Pablo Blinder
9:55 – 10:10 am	Assessment of Imputation Methods for Missing Gene Expression Data in Meta-Analysis of Distinct Cohorts of Tuberculosis Patients	<u>Carly A. Bobak</u> , Lauren McDonnell, Matthew D. Nemesure, Justin Lin, Jane E. Hill
10:10 – 10:25 am	Using Transcriptional Signatures to Find Cancer Drivers with LURE	<u>David Haan</u> , Ruikang Tao, Verena Friedl, Ioannis N Anastopoulos, Christopher K Wong, Alana S Weinstein, Joshua M Stuart
10:25 – 10:40 am	Two-stage ML Classifier for Identifying Host Protein Targets of the Dengue Protease	<u>Jacob T. Stanley</u> , Alison R. Gilchrist, Alex C. Stabell, Mary A. Allen, Sara L. Sawyer, Robin D. Dowell
10:40 – 11:00 am	Break	
11:00 – 11:15 am	Machine learning algorithms for simultaneous supervised detection of peaks in multiple samples and cell types	<u>Toby Dylan Hocking</u> , Guillaume Bourque
11:15 -11:30 am	Graph-based information diffusion method for prioritizing functionally related genes in protein-protein interaction networks	<u>Minh Pham</u> , Olivier Lichtarge
11:30 – 11:45 am	A Literature-Based Knowledge Graph Embedding Method for Identifying Drug Repurposing Opportunities in Rare Diseases	<u>Daniel N. Sosa</u> , Alexander Derry, Margaret Guo, Eric Wei, Connor Brinton, Russ B. Altman
11:45 – 12:00 pm	Enhancing Model Interpretability and Accuracy for Disease Progression Prediction via Phenotype-Based Patient Similarity Learning	<u>Yue Wang</u> , Tong Wu, Yunlong Wang, Gao Wang
12:00 – 12:15 pm	Towards identifying drug side effects from social media using active learning and crowd sourcing	<u>Sophie Burkhardt</u> , Julia Siekiera, Josua Glodde, Miguel A. Andrade-Navarro, Stefan Kramer
12:15 – 2:00 pm	Break – Lunch on own	
2:00 – 3:00 pm	Discussion Session (Plaza) Pattern Recognition in Biomedical Data: Challenges in Putting Big Data to Work	
3:00 – 4:15 pm	Session 4: Mutational Signatures: Etiology, Properties and Role in Cancer (Salon 2&3)	Co-chairs: Max Leiserson, Teresa Przytycka, Roded Sharan
3:00 – 3:10 pm	Introduction	
3:10 – 3:30 pm	Invited Talk	Ludmil Alexandrov
3:30 – 3:45 pm	DNA Repair Footprint Uncovers Contribution of DNA Repair Mechanism to Mutational Signatures	<u>Damian Wojtowicz</u> , Mark D.M. Leiserson, Roded Sharan, Teresa M. Przytycka
3:45 – 4:00 pm	TrackSigFreq: Subclonal Reconstructions Based on Mutation Signatures and Allele Frequencies	<u>Caitlin F. Harrigan</u> , Yulia Rubanova, Quaid Morris, Alina Selega
4:00 – 4:15 pm	PhySigs: Phylogenetic Inference of Mutational Signature Dynamics	<u>Sarah Christensen</u> , Mark D.M. Leiserson, Mohammed El-Kebir
4:15 – 5:15 pm	Discussion Session (Salon 2&3) Mutational Signatures	
5:30 – 7:00 pm	PSB Dinner Banquet (Coconut Grove)	
7:00 – 7:30 pm	25th Anniversary Celebration Dessert (Ballroom Courtyard)	
7:30 – 8:30 pm	Keynote: Ifeoma Ajunwa (Salon 2&3)	Introduction by Marylyn Richie

Tuesday, January 7, 2020

7:30 – 8:30 am	Breakfast (Ballroom Courtyard)
8:30 – 8:40 am	Closing Announcements (Salon 2&3) TERI Talks (Salon 2&3)
8:40 – 9:10 am	Roxana Daneshjou, Stanford University
9:10 – 9:40 am	Jonathan Haines, Case Western Reserve University

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Tuesday, January 7 (cont.)

9:45 – 11:15 am	Session 5: Intrinsically Disordered Proteins (IDPs) and Their Functions (Salon 2&3)	Co-chairs: A. Keith Dunker, Lukasz Kurgan, Predrag Radivojac, Joel L. Sussman
9:45 - 9:55 am	Introduction	
9:55 – 10:15 am	Invited Talk	Lukasz Kurgan
10:15 – 10:30 am	Disordered Function Conjunction: On the in-silico function annotation of intrinsically disordered regions	Sina Ghadermarzi, Akila Katuwawala, Christopher J. Oldfield, Amita Barik, Lukasz Kurgan
10:30 – 10:45 am	De novo ensemble modeling suggests that AP2-binding to disordered regions can increase steric volume of Epsin but not Eps15	N. Suhas Jagannathan, Christopher W. V. Hogue, Lisa Tucker-Kellogg
10:45 – 11:00 pm	Modulation of p53 transactivation domain conformations by ligand binding and cancer-associated mutations	Xiaorong Liu, Jianhan Chen
11:00 – 11:15 am	Exploring relationships between the density of charged tracts within disordered regions and phase separation	Ramiz Somjee , Diana M. Mitrea, Richard W. Kriwacki
11:15 – 12:15 pm	Discussion Session (Salon 2&3) Intrinsically Disordered Proteins (IDPs) and Their Functions	

PSB over—see you next year!!