Pacific Symposium on Biocomputing (PSB) 2020 Schedule
January 3-7, 2020, Big Island of Hawaii

Friday, January 3, 2020

Registration		
7:30-9:30	Registration	Ballroom Prefunction
12:00-2:00	Registration	Ballroom Prefunction
5:00-5:30	Registration	Croquet Lawn
Workshops 1 & 2		
9:00-12:00	**AI Ethics and Values in Biomedicine – Technical Challenges and Solutions**	Salon 2&3
	Organizers: Dragutin Petkovic, Lester Kobzik, Reza Ghanadan	
9:00-12:00	**Packaging Biocomputing Software to Maximize Distribution and Reuse**	Plaza
	Organizers: William S. Bush, Nicholas Wheeler, Brett Beaulieu-Jones, Christian Darabos	
Break		
12:00-1:30	Lunch on own	
Workshop 3		Salon 2&3
1:30-4:30	**Navigating Ethical Quandaries with the Privacy Dilemma of Biomedical Datasets**	
	Organizers: Gamze Gursoy, Megan Doerr, Steven E. Brenner, Haixu Tang, John Wilbanks, Jennifer K. Wagner	
Birds of a Feather Working Group Meeting (all invited)		Plaza
1:30-3:00	**JBrowse – Hands-On Session**	
	Organizer: Ian Holmes	
Break		
4:30-5:00	Break	
Reception		Croquet Lawn
5:00-6:00	25th Anniversary Reception including PSB group photo	
	Sponsored by the Cleveland Institute for Computational Biology	
Break		
6:00-	Dinner & Evening on own	

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Pacific Symposium on Biocomputing (PSB) 2020 Schedule
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Saturday, January 4, 2020

Registration		
7:30-9:00	Registration	Ballroom Prefunction
10:30-11:30	Registration	Ballroom Prefunction
12:00-1:00	Registration	Ballroom Prefunction
Breakfast		**Ballroom Courtyard**
7:30-8:45	PSB Breakfast	
Welcome		**Salon 2&3**
8:30-8:40	Welcome	
Session 1		**Salon 2&3**

Artificial Intelligence for Enhancing Clinical Medicine
Co-chairs: Roxana Daneshjou, Olga Afanasiev, Lukasz Kidziński, Jonathan Chen

8:40-8:50	Introduction
8:50-9:05	*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	*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	*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	*Addressing the Credit Assignment Problem in Treatment Outcome Prediction Using Temporal Difference Learning* Sahar Harati, Andrea Crowell, Helen Mayberg, Shamim Nemati
9:50-10:05	*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	*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	*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
Break	
10:35-10:50	Break

Pacific Symposium on Biocomputing (PSB) 2020 Schedule

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Saturday, January 4, 2020 continued

Keynote	Salon 2&3
10:50-12:00	***Building the FAIR Research Commons for Life Sciences: the pain, the glory***
	Carole Goble with introduction by Larry Hunter

Lunch	Ballroom Courtyard
12:00-1:15	PSB Hosted Lunch

Workshop 4	Salon 2&3
1:30-4:30	**Translational Bioinformatics Workshop: Biobanks in the Precision Medicine Era**
	Co-chairs: Marylyn Ritchie, Jason Moore, Ju Han Kim

Break	
4:30-	Dinner & Evening on own

Pacific Symposium on Biocomputing (PSB) 2020 Schedule

January 3-7, 2020, Big Island of Hawaii

Sunday, January 5, 2020

Registration	Ballroom Prefunction
7:30-8:30	Registration

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

Announcements	Salon 2&3
8:30-8:40	Morning Announcements

TERI Talks	Salon 2&3
8:40-9:10	Steven Brenner, University of California, Berkeley
9:10-9:40	Greg Hampikian, Boise State University

Session 2   Salon 2&3

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	Introduction
9:55-10:15	Invited Talk: Kristin Lauter
10:15-10:30	*Integrated Cancer Subtyping using Heterogeneous Genome-Scale Molecular Datasets* Suzan Arslanturk, <u>Sorin Draghici</u>, Tin Nguyen
10:30-10:45	*Assessment of coverage for endogenous metabolites and exogenous chemical compounds using an untargeted metabolomics platform* <u>Sek Won Kong</u>, Carles Hernandez-Ferrer
10:45-11:00	*Coverage profile correction of shallow-depth circulating cell-free DNA sequencing via multi-distance learning* <u>Nicholas B. Larson</u>, Melissa C. Larson, Jie Na, Carlos P. Sosa, Chen Wang, Jean-Pierre Kocher, Ross Rowsey
11:00-11:15	*PGxMine: Text mining for curation of PharmGKB* <u>Jake Lever</u>, 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	Break
11:30-11:45	*The power of dynamic social networks to predict individuals' mental health* <u>Shikang Liu</u>, 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* <u>Gaurav Luthria</u>, <u>Qingbo Wang</u>
12:00-12:15	*Pathway and network embedding methods for prioritizing psychiatric drugs* <u>Yash Pershad</u>, Margaret Guo, Russ B. Altman

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Sunday, January 5, 2020 continued

12:15-12:30	*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	*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

Poster Session Lunch   Salon 1 and Ballroom Courtyard
12:45-2:30   Poster Session with Lunch (food available 12:45-2:00; drinks until 2:30)
(Posters on ODD numbered boards presented from 1:00-1:45)
(Posters on EVEN numbered boards presented from 1:45-2:30)

Discussion Session   Salon 2&3
2:30-4:30   Joint Discussion Session: Artificial Intelligence for Enhancing Clinical Medicine and Precision medicine: addressing the challenges of sharing, analysis, and privacy at scale

Parasite & Symbiont Awards   Salon 2&3
4:30-5:00   **Parasite & Symbiont Awards**

Break
5:00-   Dinner and evening on own

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Pacific Symposium on Biocomputing (PSB) 2020 Schedule

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Monday, January 6, 2020

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

Announcements	**Salon 2&3**
8:30-8:40	Morning Announcements

Session 3	**Salon 2&3**

Pattern Recognition in Biomedical Data: Challenges in Putting Big Data to Work

Co-chairs: Brett Beaulieu-Jones, Christian Darabos, Dokyoon Kim, Shilpa Kobren, Anurag Verma

8:40-8:50	Introduction
8:50-9:10	Invited Talk: Gabriel Brat
9:10-9:25	*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
9:25-9:40	*PAGE-Net: Interpretable and Integrative Deep Learning for Survival Analysis Using Histopathological Images and Genomic Data* <u>Jie Hao</u>, Sai Chandra Kosaraju, Nelson Zange Tsaku, Dae Hyun Song, Mingon Kang
cancelled	*Microvascular Dynamics from 4D Microscopy Using Temporal Segmentation* Shir Gur, <u>Lior Wolf</u>, Lior Golgher, Pablo Blinder
9:40-9:55	*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
9:55-10:10	*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
10:10-10:25	*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
10:25-10:45	Break
10:45-11:00	*Machine learning algorithms for simultaneous supervised detection of peaks in multiple samples and cell types* <u>Toby Dylan Hocking</u>, Guillaume Bourque
11:00-11:15	*Graph-based information diffusion method for prioritizing functionally related genes in protein-protein interaction networks* <u>Minh Pham</u>, Olivier Lichtarge

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Monday, January 6, 2020 continued

11:15-11:30	*A Literature-Based Knowledge Graph Embedding Method for Identifying Drug Repurposing Opportunities in Rare Diseases* Daniel N. Sosa, Alexander Derry, Margaret Guo, Eric Wei, Connor Brinton, Russ B. Altman
11:30-11:45	*Enhancing Model Interpretability and Accuracy for Disease Progression Prediction via Phenotype-Based Patient Similarity Learning* Yue Wang, Tong Wu, Yunlong Wang, Gao Wang
11:45-12:00	*Towards identifying drug side effects from social media using active learning and crowd sourcing* Sophie Burkhardt, Julia Siekiera, Josua Glodde, Miguel A. Andrade-Navarro, Stefan Kramer

Break
12:00-2:00   Lunch on Own

Discussion Session   **Plaza**
2:00-3:00   **Pattern Recognition in Biomedical Data: Challenges in Putting Big Data to Work**

Session 4   **Salon 2&3**
Mutational Signatures: Etiology, Properties and Role in Cancer
Co-chairs: Max Leiserson, Teresa Przytycka, Roded Sharan

3:00-3:10	Introduction
3:10-3:30	Invited Talk: Ludmil Alexandrov
3:30-3:45	*DNA Repair Footprint Uncovers Contribution of DNA Repair Mechanism to Mutational Signatures* Damian Wojtowicz, Mark D.M. Leiserson, Roded Sharan, Teresa M. Przytycka
3:45-4:00	*TrackSigFreq: Subclonal Reconstructions Based on Mutation Signatures and Allele Frequencies* Caitlin F Harrigan, Yulia Rubanova, Quaid Morris, Alina Selega
4:00-4:15	*PhySigs: Phylogenetic Inference of Mutational Signature Dynamics* Sarah Christensen, Mark D.M. Leiserson, Mohammed El-Kebir

Discussion Session   **Salon 2&3**
4:15-5:15   **Mutational Signatures**

Dinner   ~~Coconut Grove~~ Croquet Lawn (due to high winds)
5:30-7:00   PSB Dinner Banquet

Dessert   **Ballroom Courtyard**
7:00-7:30   25th Anniversary Celebration Dessert

Keynote   **Salon 2&3**
7:30-8:30   ***Valid or Invalid?: Genetic Data as part of Workplace Wellness Programs***
Ifeoma Ajunwa with introduction by Marylyn Ritchie

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January 6, 2020

Pacific Symposium on Biocomputing (PSB) 2020 Schedule
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Tuesday, January 7, 2020

Breakfast	Ballroom Courtyard
7:30-8:30	Breakfast

Closing	Salon 2&3
8:30-8:40	Closing Announcements

TERI Talks	Salon 2&3
8:40-9:10	Roxana Daneshjou, Stanford University
9:10-9:40	Jonathan Haines, Case Western Reserve University

Session 5   Salon 2&3

Intrinsically Disordered Proteins (IDPs) and Their Functions
Co-chairs: A. Keith Dunker, Lukasz Kurgan, Predrag Radivojac, Joel L. Sussman

9:45-9:55   Introduction

9:55-10:15   Invited Talk: Lukasz Kurgan

10:15-10:30   *Disordered Function Conjunction: On the in-silico function annotation of intrinsically disordered regions*
Sina Ghadermarzi, Akila Katuwawala, Christopher J. Oldfield, Amita Barik, <u>Lukasz Kurgan</u>

10:30-10:45   *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, <u>Lisa Tucker-Kellogg</u>

10:45-11:00   *Modulation of p53 transactivation domain conformations by ligand binding and cancer-associated mutations*
Xiaorong Liu, <u>Jianhan Chen</u>

11:00-11:15   *Exploring relationships between the density of charged tracts within disordered regions and phase separation*
<u>Ramiz Somjee</u>, Diana M. Mitrea, Richard W. Kriwacki

Discussion Session	Salon 2&3
11:15-12:15	**Intrinsically Disordered Proteins (IDPs) and Their Functions**

PSB over--see you next year!

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