

# Pacific Symposium on Biocomputing (PSB) 2018 Schedule

January 3-7, 2018, Big Island of Hawaii

## Wednesday, January 3, 2018

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### Registration

7:30-9:30	Registration	Ballroom Prefunction
12:00-2:00	Registration	Ballroom Prefunction
7:30-8:30	Registration	Kilohana

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### Workshops

9:00-12:00	Machine Learning and Deep Analytics for Biocomputing: Call for Better Explainability Organizers: Dragutin Petkovic, Lester Kobzik, Christopher Re	Salon 2&3
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### Break

12:00-1:30	Lunch on own
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### Workshop

1:30-4:30	Integrating Community-level Data Resources for Precision Medicine Research Organizers: Dana C. Crawford, William S. Bush	Salon 2&3
1:30-4:30	Methods for Examining Data Quality in Healthcare Integrated Data Repositories Organizers: Vojtech Huser, Michael Kahn, and Jeffrey Brown	Plaza

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### Break

4:30-7:30	Dinner on own
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### Reception

7:30-8:30	23 <sup>rd</sup> Anniversary Reception	Kilohana
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# Pacific Symposium on Biocomputing (PSB) 2018 Schedule

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## Thursday, January 4, 2018

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### Registration

7:30-9:00	Registration	Ballroom Prefunction
10:30-11:30	Registration	Ballroom Prefunction
12:00-1:00	Registration	Ballroom Prefunction

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### Breakfast

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

8:30-8:40	Welcome	Salon 2&3
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### Session 1: Applications of Genetics, Genomics and Bioinformatics in Drug Discovery

Co-chairs: Richard Bourgon, Rick Dewey, Zhengyan Kan, Dan Li

8:40-8:50 Introduction

8:50-9:10 Invited Talk: *Checkpoint blockade and reverse translation: The roles of genomic instability, tumor-immune phenotype and TGF- $\beta$  signaling on response to PD-L1 blockade in metastatic urothelial bladder cancer*  
Richard Bourgon

9:10-9:25 *Large-scale integration of heterogeneous pharmacogenomic data for identifying drug mechanism of action*

Yunan Luo, Sheng Wang, Jinfeng Xiao, Jian Peng

9:25-9:40 *Cell-specific prediction and application of drug-induced gene expression profiles*

Rachel Hodos, Ping Zhang, Hao-Chih Lee, Qiaonan Duan, Zichen Wang, Neil R. Clark, Avi Ma'ayan, Fei Wang, Brian Kidd, Jianying Hu, David Sontag, Joel Dudley

9:40-9:55 *Characterization of drug-induced splicing complexity in prostate cancer cell line using long read technology*

Xintong Chen, Sander Houten, Kimaada Allette, Robert P. Sebra, Gustavo Stolovitzky, Bojan Losic

9:55-10:10 *Chemical Reaction Vector Embeddings: Towards Predicting Drug Metabolism in the Human Gut Microbiome*

Emily K. Mallory, Ambika Acharya, Stefano E. Rensi, Peter J Turnbaugh, Roselie A. Bright, Russ B. Altman

10:10-10:25 *Extracting a Biologically Relevant Latent Space from Cancer Transcriptomes with Variational Autoencoders*

Gregory P. Way, Casey S. Greene

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### Break

10:25-10:45

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### Keynote

10:45-11:45 *Improving Healthcare through Biomedical Data Science*

Carlos Bustamante with introduction by Russ Altman

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### Lunch

11:45-1:00 PSB Hosted Lunch

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## Thursday, January 4, 2018 *continued*

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<b>Session 2:</b>	Imaging Genomics	Salon 2&3
	Co-chairs: Heng Huang, Junzhou Huang, Kun Huang, Li Shen, Paul M. Thompson, Lin Yang	
1:00-1:10	Introduction	
1:10-1:30	Invited Talk: Mert Sabuncu	
1:30-1:45	<i>Codon Bias Among Synonymous Rare Variants Is Associated with Alzheimer's Disease Imaging Biomarker</i> <u>Jason E. Miller</u> , Manu K. Shivakumar, Shannon L. Risacher, Andrew J. Saykin, Seunggeun Lee, Kwangsik Nho, Dokyoon Kim	
1:45-2:00	<i>Deep Integrative Analysis for Survival Prediction</i> <u>Chenglong Huang</u> , Albert Zhang, Guanghua Xiao	
2:00-2:15	<i>Discriminative Bag-of-Cells for Imaging-Genomics</i> <u>Benjamin Chidester</u> , Minh N. Do, Jian Ma	
2:15-2:30	<i>Genotype-Phenotype Association Study via New Multi-Task Learning Model</i> Zhouyuan Huo, Dinggang Shen, <u>Heng Huang</u>	
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<b>Special Topics</b>		
2:30-3:00	Parasite & Symbiont Awards	Salon 2&3
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<b>Discussion Sessions</b>		
3:00-4:00	Imaging Genomics	Salon 2&3
4:00-5:00	Applications of Genetics, Genomics and Bioinformatics in Drug Discovery	Salon 2&3
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<b>Meeting</b>		
5:00-5:30	ISCB Meeting	Salon 2&3
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<b>Break</b>		
5:30	Dinner on own	

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# Pacific Symposium on Biocomputing (PSB) 2018 Schedule

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## Friday, January 5, 2018

<b>Registration</b>		<b>Ballroom Prefunction</b>
7:30-8:30	Registration	
<b>Breakfast</b>		<b>Ballroom Courtyard</b>
7:30-8:30	PSB Breakfast	
<b>Announcements</b>		<b>Salon 2&amp;3</b>
8:30-8:40	Morning Announcements	
<b>Session 3</b>	Precision Medicine: from diplotypes to disparities towards improved health and therapies	<b>Salon 2&amp;3</b>
	Co-chairs: Bruce Aronow, Steven E. Brenner, Dana C. Crawford, Joshua C. Denny, Alexander A. Morgan	
8:40-8:45	Introduction	
8:45-9:05	Invited Talk: Vence Bonham	
9:05-9:20	<i>Considerations for automated machine learning in clinical metabolic profiling: altered homocysteine plasma concentration associated with metformin exposure</i>	
	Alena Orlenko, Jason H. Moore, Patryk Orzechowski, Randal S. Olson, Junmei Cairns, Pedro J. Caraballo, Richard M. Weinshilboum, Liewei Wang, <u>Matthew K. Breitenstein</u>	
9:20-9:35	<i>Analyzing metabolomics data for association with genotypes using two-component gaussian mixture distributions</i>	
	<u>Jason Westra</u> , Nicholas Hartman, Bethany Lake, Gregory Shearer, Nathan Tintle	
9:35-9:50	<i>Single subject transcriptome analysis to identify functionally signed gene set or pathway activity</i>	
	<u>Joanne Berghout</u> , Qike Li, Nima Pouladi, Jianrong Li, Yves A Lussier	
9:50-10:05	<i>Emergence of pathway-level composite biomarkers from converging gene set signals of heterogeneous transcriptomic responses</i>	
	Samir Rachid Zaim, Qike Li, A. Grant Schissler, <u>Yves A. Lussier</u>	
10:05-10:20	<i>Coalitional game theory as a promising approach to identify candidate autism genes</i>	
	<u>Anika Gupta</u> , <u>Min Woo Sun</u> , Kelley M. Paskov, Nate T. Stockham, Jae-Yoon Jung, Dennis P. Wall	
10:20-10:35	<i>Using simulation and optimization approach to improve outcome through warfarin precision treatment</i>	
	<u>Chih-Lin Chi</u> , Lu He, Kourosh Ravvaz, John Weissert, Peter J. Tonellato	
10:35-10:50	<i>Addressing vital sign alarm fatigue using personalized alarm thresholds</i>	
	Sarah Poole, Nigam Shah	
<b>Discussion Session</b>		<b>Salon 2&amp;3</b>
11:00-12:00	Precision Medicine: from diplotypes to disparities towards improved health and therapies phenotypes	

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## Friday, January 5, 2018 *continued*

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<b>Poster Session Lunch</b>		<b>Salon 1 and Ballroom Courtyard</b>
12:00-2:30	Poster Session with Lunch (Posters on ODD numbered boards presented from 12:30-1:30) (Posters on EVEN numbered boards presented from 1:30-2:30)	
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<b>Session 4</b>	<b>Democratizing Health Data for Translational Research</b>	<b>Salon 2&amp;3</b>
	Co-chairs: Philip Payne, Nigam Shah, Jessie Tenenbaum, Lara Mangravite	
2:30-2:40	Introduction	
2:40-3:00	Invited Talk: Joe Corkery	
3:00-3:20	Invited Talk: John Wilbanks	
3:20-3:35	<i>ClinGen Cancer Somatic Working Group – Standardizing and Democratizing Access to Cancer Molecular Diagnostic Data to Drive Translational Research</i> Subha Madhavan, Deborah Ritter, Christine Micheel, Shruti Rao, Angshumoy Roy, Dmitriy Sonkin, Matthew McCoy, Malachi Griffith, Obi L Griffith, Peter Mcgarvey, Shashikant Kulkarni on Behalf of the ClinGen Somatic Working Group	
3:35-3:50	<i>Best Practices and Lessons Learned from Reuse of 4 Patientderived Metabolomics Datasets in Alzheimer’s Disease</i> Jessica D. Tenenbaum, Colette Blach	
3:50-4:05	<i>A Heuristic Method for Simulating Open-Data of Arbitrary Complexity that Can Be Used to Compare and Evaluate Machine Learning Methods</i> Jason H. Moore, Maksim Shestov, Peter Schmitt, Randal S. Olson	
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<b>Discussion Session</b>		<b>Salon 2&amp;3</b>
4:10-5:10	Democratizing Health Data for Translational Research	
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<b>Break</b>		
5:10-	Dinner & Evening on own	

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# Pacific Symposium on Biocomputing (PSB) 2018 Schedule

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## Saturday, January 6, 2018

<b>Breakfast</b>		<b>Ballroom Courtyard</b>
7:30-8:30	PSB Breakfast	
<b>Announcements</b>		<b>Salon 2&amp;3</b>
8:30-8:40	Morning Announcements	
<b>Session 5:</b>	<b>Challenges of Pattern Recognition in Biomedical Data</b>	<b>Salon 2&amp;3</b>
	Co-chairs: Anurag Verma, Anna Basile, Marta Byrska-Bishop, Christian Darabos, Shefali Setia Verma	
8:40-8:50	Introduction	
8:50-9:10	Invited Talk: Larry Smarr	
9:10-9:25	<i>Functional Network Community Detection Can Disaggregate and Filter Multiple Underlying Pathways in Enrichment Analyses</i> <u>Lia X. Harrington</u> , Gregory P. Way, Jennifer A. Doherty, Casey S. Greene	
9:25-9:40	<i>Large-Scale Analysis of Disease Pathways in the Human Interactome</i> Monica Agrawal, <u>Marinka Zitnik</u> , Jure Leskovec	
9:40-9:55	<i>Data-driven Advice for Applying Machine Learning to Bioinformatics Problems</i> Randal S. Olson, <u>William La Cava</u> , Zairah Mustahsan, Akshay Varik, Jason H. Moore	
9:55-10:10	<i>Automated disease cohort selection using word embeddings from Electronic Health Records</i> <u>Benjamin S. Glicksberg</u> , Riccardo Miotto, Kipp W. Johnson, Khader Shameer, Li Li, Rong Chen, Joel T. Dudley	
10:10-10:25	<i>Mapping Patient Trajectories using Longitudinal Extraction and Deep Learning in the MIMIC-III Critical Care Database</i> <u>Brett K. Beaulieu-Jones</u> , Patryk Orzechowski, Jason H. Moore	
10:25-10:40	<i>Causal Inference on Electronic Health Records to Assess Blood Pressure Treatment Targets: An Application of the Parametric G Formula</i> <u>Kipp W. Johnson</u> , Benjamin S. Glicksberg, Rachel Hodos, Khader Shameer, Joel T. Dudley	
10:40-10:55	<i>How Powerful Are Summary-Based Methods for Identifying Expression-Trait Associations Under Different Genetic Architectures?</i> <u>Yogasudha Veturi</u> , Marylyn D. Ritchie	
<b>Keynote:</b>		<b>Salon 2&amp;3</b>
11:00-12:15	<i>Data Disparities: Discrimination &amp; Equity in Big Data</i> Jennifer Wagner with introduction by Marylyn Ritchie	
<b>Break</b>		
12:15-1:30	Lunch on Own	
<b>Workshop</b>		<b>Salon 2&amp;3</b>
1:30-4:30	Diversity and Disparity in Biomedical Informatics Organizers: Philip R.O. Payne, William M. Southerland, S. Joshua Swamidass, Laura Wiley, and ClarLynda Williams-DeVane	

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## **Saturday, January 6, 2018** *continued*

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### Discussion Session

Salon 2&3

4:30-5:30 Challenges of Pattern Recognition in Biomedical Data

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### Dinner

Plantation Estate

5:30-7:30 Hawaii Loa Luau

*PSB's dinner will be held at the Fairmont's Hawaii Loa Luau this year.*

Luau Schedule:

5:30 pm Check-In & Seating Begins

6:00 pm Luau Dinner Buffet

7:00 pm Performance Begins / Bar Closed

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*January 3, 2018*

# Pacific Symposium on Biocomputing (PSB) 2018 Schedule

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## Sunday, January 7, 2018

Breakfast		Ballroom Courtyard
7:30-8:30	Breakfast	
Closing		Salon 2&3
8:30-8:40	Closing Announcements	
Session 6:	Advances in Text Mining and Visualization for Precision Medicine	Salon 2&3
	Co-chairs: Graciela Gonzalez, Casey Greene, Hongfang Liu, Abeed Sarker	
8:40-8:50	Introduction	
8:50-9:10	Invited Talk: Jason Moore	
9:10-9:30	Invited Talk: Sophia Ananiadou	
9:30-9:45	<i>VisAGE: Integrating External Knowledge into Electronic Medical Record Visualization</i> Edward W. Huang, Sheng Wang, ChengXiang Zhai	
9:45-10:00	<i>Annotating gene sets by mining large literature collections with protein networks</i> Sheng Wang, Jianzhu Ma, Michael Ku Yu, Fan Zheng, Edward W Huang, Jiawei Han, Jian Peng, Trey Ideker	
10:00-10:15	<i>Improving Precision in Concept Normalization</i> Mayla Boguslav, K. Bretonnel Cohen, William A. Baumgartner Jr., Lawrence E. Hunter	
Session 7:	Reading Between the Genes: Computational Models to Discover Function and/or Clinical Utility from Noncoding DNA	Salon 2&3
	Co-chairs: Yves Lussier, Maricel Kann, Jason Moore, Kenneth Ramos, Joanne Berghout, Francesca Vitali	
10:20-10:30	Introduction	
10:30-10:50	Invited Talk: Martha Bulyk	
10:50-11:05	<i>Network analysis of pseudogene-gene relationships: from pseudogene evolution to their functional potentials</i> Travis S Johnson, Sihong Li, Johnathan R Kho, Kun Huang, Yan Zhang	
11:05-11:20	<i>Convergent downstream candidate mechanisms of independent intergenic polymorphisms between co-classified diseases implicate epistasis among noncoding elements</i> Jiali Han, Jianrong Li, Ikbel Achour, Lorenzo Pesce, Ian Foster, Haiquan Li, Yves A. Lussier	
11:20-11:35	<i>Leveraging putative enhancer-promoter interactions to investigate two-way epistasis in type 2 diabetes GWAS</i> Elisabetta Manduchi, Alessandra Chesi, Molly A. Hall, Struan F. A. Grant, Jason H. Moore	
Discussion Sessions		
11:40-12:40	Reading Between the Genes: Computational Models to Discover Function and/or Clinical Utility from Noncoding DNA	Salon 2&3
11:40-12:40	Text Mining and Visualization for Precision Medicine	Kilohana
<b>PSB over--see you next year!</b>		

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