

Pacific Symposium on Biocomputing 2016

January 4-8, 2016

Big Island of Hawaii

Program Book



PACIFIC SYMPOSIUM ON BIOCOMPUTING 2016

Big Island of Hawaii, January 4-8, 2016

Welcome to PSB 2016!

We have prepared this program book to give you quick access to information you need for PSB 2016.

Enclosed you will find

- Logistics information
- Menus for PSB hosted meals
- Full conference schedule
- Call for Session and Workshop Proposals for PSB 2017
- Poster/abstract titles and authors
- Participant List

Conference materials are also available online at
<http://psb.stanford.edu/conference-materials/>.

PSB 2016 gratefully acknowledges the support the Institute for Computational Biology, a collaborative effort of Case Western Reserve University, the Cleveland Clinic Foundation, and University Hospitals; the National Institutes of Health (NIH), the National Science Foundation (NSF); and the International Society for Computational Biology (ISCB). If you or your institution are interested in sponsoring, PSB, please contact Tiffany Murray at psb.hawaii@gmail.com

If you have any questions, the PSB registration staff (Tiffany Murray, Georgia Hansen, Brant Hansen, Kasey Miller, and BJ Morrison-McKay) are happy to help you.

Aloha!

Russ Altman
Keith Dunker
Larry Hunter
Teri Klein
Maryln Ritchie

The PSB 2016 Organizers

PACIFIC SYMPOSIUM ON BIOCOMPUTING 2016

Big Island of Hawaii, January 4-8, 2016

SPEAKER INFORMATION

Oral presentations of accepted proceedings papers will take place in Salon 2 & 3.

Speakers are allotted 10 minutes for presentation and 5 minutes for questions for a total of 15 minutes. Instructions for uploading talks were sent to authors with oral presentations. If you need assistance with this, please see Tiffany Murray or another PSB staff member.

POSTER INFORMATION

Please set up your poster upon arrival. Please use the easel marked with the same number that your poster abstract has been assigned in abstract book (e.g., if your abstract is on page 50 of the book, use the easel marked #50). Once your poster is displayed, please make sure that the number is still visible. *Please remove your poster by 9:00pm, Thursday, January 7.*

The poster session is on Wednesday, January 6 12:30-2:30.

12:30-1:30: Posters on ODD numbered boards presented.

1:30-2:30: Posters on EVEN numbered boards presented.

The poster session is centered around lunch. Please eat, talk, and network.

INTERNET CONNECTIVITY

PSB is connected to the Internet via a secure wireless network for the conference. For transferring your data/presentations or technical difficulties with the network, please see PSB IT/AV staff members Al Conde, Paul Murray, or Ryan Whaley. PSB's wireless Internet access (802.11b/g/n) is available in the Salons 1, 2, 3, the Plaza Ballroom, and the Ballroom Courtyard of the Fairmont Orchid.

Specific instructions to connect to the PSB wireless network will be posted onsite.

PACIFIC SYMPOSIUM ON BIOCOMPUTING 2016

Big Island of Hawaii, January 4-8, 2016

PSB 2016 HOSTED RECEPTIONS & MEALS

Monday, January 4

7:30-8:30pm 21st Anniversary Reception, Kilohana Room (near Concierge)
Sponsored by Case Western Reserve University, the Cleveland Clinic Foundation, and University Hospitals

Tuesday, January 5

7:30-8:30am Continental Breakfast, Ballroom Courtyard
12:00-1:15pm PSB Hosted Lunch, Ballroom Courtyard

Wednesday, January 6

7:30-8:30am Continental Breakfast, Ballroom Courtyard
12:30-2:30pm Poster Session with Lunch, Salon 1 and Ballroom Courtyard

Thursday, January 7

7:30-8:30am Continental Breakfast, Ballroom Courtyard
5:30-7:30pm Dinner Party, Coconut Grove

Friday, January 8

7:30-8:30am Continental Breakfast, Ballroom Courtyard

Non-participant meal tickets may be purchased at the PSB registration desk:

- All Meals: \$550 adults; \$275 children 6-12 years
- Reception Ticket Only: \$35 adults; \$15 children 6-12 years
- Banquet Ticket Only: \$150 adults; \$75 children 6-12 years
- Reception & Banquet Only: \$180 adults; \$85 children 6-12 years

Please remember to wear your PSB nametag & lanyard at all PSB functions.

Enjoy the conference!

Pacific Symposium on Biocomputing 2016
Hosted Meal Menus

Monday, January 4

21st Anniversary Reception (7:30-8:30pm)

Wine, beer, champagne, soft drinks, coffee & tea service

Triple Chocolate Mousse Cake decorated with the gold strawberries, passion fruit sauce & raspberries

Tuesday, January 5

Breakfast (7:30am-8:30am)

Orange Juice, Guava Juice & Pineapple Juice

Sliced Fresh Seasonal Fruit Tray

Island Fruit Breads, Freshly Baked Croissants, Tropical Danishes & Muffins, Sweet Butter & Tropical Fruit Preserves

Puako Muffin - Diced Portuguese Sausage, Scrambled Eggs & Monterey Jack Cheese
{vegetarian option included}

Selection of Dry Cereals & Muesli

Royal Kona Blend Coffee, Decaffeinated Coffee & Fairmont Signature Teas

Lunch (12:00pm-1:15pm)

Freshly Tossed Kekela Farms Baby Greens with Garden Vegetables, Spiced Mac Nuts,
Caramelized Hilo Papaya & Ka'u Orange Vinaigrette

German-style Potato Salad

Strawberry Papaya with Fresh Lime

Taro & Maui Potato Chips

Toy Dogs: Wagyu Mini Dogs {& Vegetarian Option} Pretzel Buns, Pickle Relish, Hot Peppers,
Onions, Mustard, Ketchup, Salsa, Shredded Cheese, Paniolo Cowboy Chili

Chocolate Chip Macadamia Nut Pie

Mango Ginger Crisp with Raw Sugar Streusel

Freshly Brewed Iced Tea & Lemonade

Wednesday, January 6

Breakfast (7:30am-8:30am)

Orange Juice, Guava Juice & Pineapple Juice

Sliced Fresh Seasonal Fruit Tray

Island Fruit Breads, Freshly Baked Croissants, Tropical Inspired Danishes & Muffins, Sweet Butter & Tropical Fruit Preserves

Selection of Dry Cereals & Muesli

South Point Vegetable Burrito: Spinach, Sweet Peppers, Onions, Cheddar Cheese, Black Beans
& Brown Rice, served with Tomato Salsa

Royal Kona Blend Coffee, Decaffeinated Coffee & Fairmont Signature Teas

Lunch (12:30pm-2:30pm)

Island Baby Romaine, Focaccia Croutons, Traditional Caesar Dressing, Shaved Parmesan & Julienne Prosciutto

Tropical Fruit Display

Cole Slaw

Pickled Vegetable Salad

Taro Chips and Maui Chips

Sliders on Hawaiian Sweet Rolls: Kahua Ranch Wagyu Beef Slider, Kalua Pork Slider, Truffle Mushroom & Tofu Slider

Assorted Ice Cream Bars

Freshly Brewed Iced Tea, Lemonade, Beer, Wine, and Soft Drinks

Pacific Symposium on Biocomputing 2016
Hosted Meals (con't)

Thursday, January 7

Breakfast (7:30am-8:30am)

Orange Juice, Guava Juice & Pineapple Juice
Sliced Fresh Seasonal Fruit Tray
Island Fruit Breads, Freshly Baked Croissants, Tropical Inspired Danishes & Muffins, Sweet Butter & Tropical Fruit Preserves
Selection of Dry Cereals & Muesli
Hilo Sunrise Wrap: Egg, Chorizo, Cheddar Cheese & Cilantro with Mango-Pineapple Salsa {vegetarian option included}
Royal Kona Blend Coffee, Decaffeinated Coffee & Fairmont Signature Teas

Dinner Reception (5:30pm-7:30pm)

Fresh Baby Greens, Tomato Wedges, Cucumbers, Shaved Onions, Sliced Mushrooms, White Balsamic Vinaigrette & Ranch Dressing
Waimea Tomato & Marinated Artichoke Salad
Big Island Style Ahi Poke with Crushed Kukui Nuts, Onions, Ogo, Shoyu, Sesame Oil & Sambal
Dim Sum Station - Char Siu Bao, Island Style Pot Stickers, Pork & Shrimp Siu Mai, Shrimp Har Gau, Soy-Mustard Ponzu Sauce & Sweet Chili Sauce
Micro Steam Buns & Hoisin Kalua Pork
Furikake Seared Mahi Mahi, Lemongrass Emulsion
Imu-Style Cooked Kalua Pork
Mango Huli Chicken, Papaya & Edamame Lau'ai
Crispy Curry Tofu, Japanese Eggplant, Asparagus Shiitake Mushrooms, Sautéed Spinach with Thai Curry Sauce
Chef's Seasonal Vegetable
Kim Chee & Vegetable Fried Rice
Saffron Passion Fruit Panna Cotta, Popping Boba
Choice of Cupcakes: MacNut, Red Velvet, Chocolate & Pistachio
Royal Kona Blend Regular & Decaffeinated Coffee & Fairmont Signature Teas
Complete open bar including cocktails, blended drinks, wine, beer, non-alcoholic drinks

Friday, January 8

Breakfast (7:30am-8:30am)

Orange Juice, Guava Juice & Pineapple Juice
Sliced Fresh Seasonal Fruit Tray
Island Fruit Breads, Freshly Baked Croissants, Tropical Inspired Danishes & Muffins, Sweet Butter & Tropical Fruit Preserves
Selection of Dry Cereals & Muesli, Individual Greek Yogurt, Plain & Assorted Fruit Flavored
Island Quiche: Maui Onions & Pipikaula {vegetarian option included}
Royal Kona Blend Coffee, Decaffeinated Coffee & Fairmont Signature Teas

Pacific Symposium on Biocomputing (PSB) 2016 Schedule

January 4-8, 2016, Big Island of Hawaii

Sunday, January 3, 2016

Registration

4:00-5:30pm	Registration	Ballroom Prefunction
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Monday, January 4, 2016

Registration

7:30-9:30am	Registration	Ballroom Prefunction
12:00-2:00pm	Registration	Ballroom Prefunction
6:00-7:30pm	Registration	Ballroom Prefunction

Workshops

9:00-12:00	Translational Bioinformatics 101	Salon 2&3
	Speakers: Jessica Tenenbaum, Lewis Frey, Robert Freimuth, Subha Madhavan, Joshua Denny	
9:00-12:00	Computational Approaches to Study Microbes and Microbiomes	Plaza
	Speakers: Susan Holmes, Igor Zhulin Jouline, Tandy Warnow, Chad Myers, Yana Bromberg, Casey Greene, Iddo Friedberg, Fiona Brinkman, Anne Hoen, Dan Knights, Craig Lessard, Serghei Mangul, James Foster, Nam-phuong Nguyen	

Break

12:00-1:30	Lunch on own
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Workshop

1:30-4:30	Use of Genome Data in Newborns as a Starting Point for Life-Long Precision Medicine	Salon 2&3
1:30	Introduction and welcome	
1:40	Robert Nussbaum, <i>Newborn screening and genome sequencing</i>	
2:10	Stephen Kingsmore, <i>Integrating deep phenotyping and genome sequencing to enable precision medicine in neonatal intensive care units</i>	
3:00	Jennifer Puck, <i>Using newborn dried blood spots to obtain deep sequence data for enhanced, early diagnosis</i>	
3:30	Steven E. Brenner, <i>Analysis challenges of newborn genome sequences</i>	
4:00	Sean Mooney, <i>Understanding the complex genetics of simple Mendelian traits</i>	
1:30-4:30	Biomedical Applications of Topology and Abstract Algebras	Plaza
	Speakers: Eric Neumann, Svetlana Lockwood	

Break

4:30-7:30	Dinner on own
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Reception

7:30-8:30pm	21 st Anniversary Reception with Drinks and Desserts	Kilohana
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Please wear your PSB name tag and lanyard for admission to all events and hosted meals.

Pacific Symposium on Biocomputing (PSB) 2016 Schedule

January 4-8, 2016, Big Island of Hawaii

Tuesday, January 5, 2016

Registration

7:30-9:00	Registration	Ballroom Prefunction
10:30-11:30	Registration	Ballroom Prefunction
1:00-2:00	Registration	Ballroom Prefunction

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: Innovative Approaches to Combining Genotype, Phenotype, Epigenetic, and Exposure Data for Precision Diagnostics

8:40-8:50 Introduction

Melissa Haendel, Nicole Washington, Maricel Kann

8:50-9:10 Invited Talk: Elissa Chesler

GeneWeaver: Finding relations among genes, phenotypes, and diseases from heterogeneous functional genomics data

Functional genomic studies of disease now encompass several decades of research resulting in a large volume of diverse associations of genes and their relations to the biological concepts reflected in experimental paradigms, diagnostic criteria and other disease related parameters. The GeneWeaver system is a platform for harmonizing and integrating the resulting gene lists, gene networks and descriptive meta-content to enable data-driven discovery of relations among experimental constructs and disease through user guided interrogation backed by powerful, efficient graph algorithms and dynamic visualization of results. Through this system, users can find convergent evidence from multiple species and experimental paradigms of a role for genes in disease related processes, align individual gene centric data sets to the database of known genomic data, identify model organism phenotypes and specific models that map onto various facets of human disease, and classify diseases and assays based on their intrinsic biological similarity rather than on extrinsic characteristics.

9:10-9:25 *Discovering Patient Phenotypes Using Generalized Low Rank Models*

Alejandro Schuler, Vincent Liu, Joe Wan, Alison Callahan, Madeleine Udell, David E. Stark, Nigam H. Shah

9:25-9:40 *Diagnosis-Guided Method for Identifying Multi-Modality Neuroimaging*

Biomarkers Associated with Genetic Risk Factors in Alzheimer's Disease

Xiaoke Hao, Jingwen Yan, Xiaohui Yao, Shannon L. Risacher, Andrew J. Saykin, Daoqiang Zhang, Li Shen, for the ADNI

9:40-9:55 *Metabolomics Differential Correlation Network Analysis of Osteoarthritis*

Ting Hu, Weidong Zhang, Zhaozhi Fan, Guang Sun, Sergei Likhodi, Edward Randell, Guangju Zhai

9:55-10:10 *Integrating Clinical Laboratory Measures and ICD-9 Code Diagnoses in Phenome-Wide Association Studies*

Anurag Verma, Joseph B. Leader, Shefali S. Verma, Alex Frase, John

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Pacific Symposium on Biocomputing (PSB) 2016 Schedule

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Tuesday, January 5, 2016 (con't)

Wallace, Scott Dudek, Daniel R. Lavage, Cristopher V. Van Hout, Frederick E. Dewey, John Penn, Alex Lopez, John D. Overton, David J. Carey, David H. Ledbetter, H. Lester Kirchner, Marylyn D. Ritchie, Sarah A. Pendergrass
10:10-10:25 *Investigating the Importance of Anatomical Homology for Cross-Species Phenotype Comparisons Using Semantic Similarity*
Prashanti Manda, Christopher J. Mungall, James P. Balhoff, Hilmar Lapp, Todd J. Vision

Break

10:25-10:50

Keynote

Salon 2&3

10:50-12:00 *Creating a Gene X Phenome Catalog through Integration of Genome, Transcriptome, and EHR Data*
Nancy Cox, with introduction by Russ Altman

Lunch

Ballroom Courtyard

12:00-1:15 PSB Hosted Lunch

Session 2: Discovery of Molecularly Targeted Therapies

Salon 2&3

1:30-1:40 Introduction

Philip R.O. Payne, Kun Huang, Nigam Shah

1:40-2:00 Invited Talk: Scott Kahn

Balancing Short Term Dx with Longer Term Knowledge Creation

Paradoxically it seems as though the immediate needs to diagnose and treat a patient using genomic information can be at the expense of any longer term effort to aggregate such patient data for subsequent analysis and knowledge creation. This presentation will offer a different perspective that relies upon an open architecture in which patient reporting, cohort aggregation and analysis, and an extensible knowledgebase are all integrated with one another, and ultimately integrated within a healthcare organization's information infrastructure.

2:00-2:15 *Collective Pairwise Classification for Multi-Way Analysis of Disease and Drug Data*

Marinka Zitnik, Blaz Zupan

2:15-2:30 *Computing Therapy for Precision Medicine: Collaborative Filtering Integrates and Predicts Multi-entity Interactions*

Sam Regenbogen, Angela D. Wilkins, Olivier Lichtarge

2:30-2:45 *An Integrated Network Approach to Identifying Biological Pathways and Environmental Exposure Interactions in Complex Diseases*

Christian Darabos, Jingya Qiu, Jason H. Moore

2:45-3:00 *Integrating Genetic and Structural Data on Human Protein Kinome in Network-Based Modeling of Kinase Sensitivities and Resistance to Targeted and Personalized Anticancer Drugs*

Gennady M. Verkhivker

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Tuesday, January 5, 2016 (con't)

3:00-3:15 *A Framework for Attribute-Based Community Detection with Applications to Integrated Functional Genomics*
Han Yu, Rachael Hageman Blair

Discussion Sessions

3:15-4:15 Discovery of Molecularly Targeted Therapies

4:15-5:15 Innovative Approaches to Combining Genotype, Phenotype, Epigenetic, and Exposure Data for Precision Diagnostics

Break

5:30 Dinner on own

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Pacific Symposium on Biocomputing (PSB) 2016 Schedule

January 4-8, 2016, Big Island of Hawaii

Wednesday, January 6, 2016

Registration

7:30-8:30 Registration Ballroom Prefunction

Breakfast

7:30-8:30 PSB Breakfast Ballroom Courtyard

Announcements

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

Session 3: Precision Medicine: Data and Discovery for Improved Health and Therapy Salon 2&3

8:40-8:45 Introduction

Bruce Aronow, Steven Brenner, Sean Mooney, Alexander Morgan

8:45-9:20 Invited Talk: Jennifer Doudna

CRISPR Biology: A New Era in Genome Engineering

The advent of facile genome engineering using the bacterial RNA-guided CRISPR-Cas9 system in animals and plants is transforming biology. I will present a brief history of CRISPR biology from its initial discovery through the elucidation of the CRISPR-Cas9 enzyme mechanism, providing the foundation for remarkable developments using this technology to modify, regulate or visualize genomic loci in a wide variety of cells and organisms. These results highlight a new era in which genomic manipulation is no longer a bottleneck to experiments, paving the way to both fundamental discoveries in biology, with applications in all branches of biotechnology, and strategies for human therapeutics. Recent results regarding the molecular mechanism of Cas9 and its use for targeted cell-based therapies will be discussed.

9:20-9:35 *Multitask Feature Selection with Task Descriptors*

Victor Bellon, Veronique Stoven, Chloe-Agathe Azencott

9:35-9:50 *Knowledge Driven Binning and PheWAS Analysis in Marshfield Personalized Medicine Research Project Using BioBin*

Anna O. Basile, John R. Wallace, Peggy Peissig, Catherine A. McCarty, Murray Brilliant, Marylyn D. Ritchie

9:50-10:05 *Biofilter as a Functional Annotation Pipeline for Common and Rare Copy Number Burden*

Dokyoon Kim, Anastasia Lucas, Joseph Glessner, Shefali S. Verma, Yuki Bradford, Ruowang Li, Alex T. Frase, Hakon Hakonarson, Peggy Peissig, Murray Brilliant, Marylyn D. Ritchie

10:05-10:20 *Separating the Causes and Consequences in Disease Transcriptome*
Yong Fuga Li, Fuxiao Xin, and Russ B. Altman

10:20-10:35 *The Challenges in Using Electronic Health Records for Pharmacogenomics and Precision Medicine Research*
Sarah M. Laper, Nicole A. Restrepo, Dana C. Crawford

10:35-10:50 *Kidney Disease Genetics and the Importance of Diversity in Precision Medicine*

Jessica N. Cooke Bailey, Sarah Wilson, Kristin Brown-Gentry, Robert Goodloe, Dana C. Crawford

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Pacific Symposium on Biocomputing (PSB) 2016 Schedule

January 4-8, 2016, Big Island of Hawaii

Wednesday, January 6, 2016 (con't)

Break

10:50-11:00

11:00-11:15 *Personalized Hypothesis Tests for Detecting Medication Response in Parkinson Disease Patients Using iPhone Sensor Data*

Elias Chaibub Neto, Brian M. Bot, Thanneer Perumal, Larsson Omberg, Justin Guinney, Mike Kellen, Arno Klein, Stephen H. Friend, Andrew D. Trister

11:15-11:30 *PRISM: A Data-Driven Platform for Monitoring Mental Health*

Maulik R. Kamdar, Michelle J. Wu

11:30-11:45 *Patient-Specific Data Fusion for Cancer Stratification and Personalised Treatment*

Vladimir Gligorijevic, Noel Malod-Dognin, Natasa Przulj

11:45-12:00 *Bayesian Biclustering for Patient Stratification*

Sahand Khakabimamaghani, Martin Ester

12:00-12:15 *Predicting Significance of Unknown Variants in Glial Tumors Through Sub-Class Enrichment*

Alex M. Fichtenholtz, Nicholas D. Camarda, Eric K. Neumann

12:15-12:30 *One-Class Detection of Cell States in Tumor Subtypes*

Artem Sokolov, Evan O. Paull, Joshua M. Stuart

Poster Session Lunch

Salon 1 and Ballroom Courtyard

12:30-2:30 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)

Discussion Session

Salon 2&3

2:30-3:30 Precision Medicine: Data and Discovery for Improved Health and Therapy

ISCB Open Meeting

Salon 2&3

3:45-4:15 ISCB Open Meeting

Break

4:15 – Dinner and evening on own

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Pacific Symposium on Biocomputing (PSB) 2016 Schedule

January 4-8, 2016, Big Island of Hawaii

Thursday, January 7, 2016

Breakfast		Ballroom Courtyard
7:30-8:30	PSB Breakfast	
Announcements		Salon 2&3
8:30-8:40	Morning Announcements	
Session 4: Social Media Mining for Public Health Monitoring and Surveillance		Salon 2&3
8:40-8:50	Introduction Graciela Gonzalez, Matthew Scotch, Karen Smith, John Brownstein, Abeed Sarker, Michael Paul, Azadeh Nikfarjam	
8:50-9:10	Invited Speaker: Abeed Sarker <i>Social media mining for pharmacovigilance-- challenges and progress</i> Social media is increasingly being used for public health monitoring tasks and the trend is likely to continue because of the rapid growth of data in this domain. This talk will focus on the DIEGO lab's efforts on social media mining for pharmacovigilance, and how the techniques and lessons learned can be used for performing related public health monitoring tasks from social media.	
9:10-9:25	<i>Towards Early Discovery of Salient Health Threats: A Social Media Emotion Classification Technique</i> Bahadorreza Ofoghi, Meghan Mann, Karin Verspoor	
9:25-9:40	<i>Monitoring Potential Drug Interactions and Reactions via Network Analysis of Instagram User Timelines</i> Rion Brattig Correia, Lang Li, <u>Luis M. Rocha</u>	
9:40-9:55	<i>Text Classification for Automatic Detection of E-Cigarette Use and Use for Smoking Cessation from Twitter: A Feasibility Pilot</i> <u>Yin Aphinyanaphongs</u> , Armine Lulejian, Duncan Penfold Brown, Richard Bonneau, Paul Krebs	
9:55-10:10	<i>Insights from Machine-Learned Diet Success Prediction</i> <u>Ingmar Weber</u> , Palakorn Achananuparp	
10:10-10:25	<i>Predicting Individual Well-Being Through the Language of Social Media</i> H. Andrew Schwartz, Maarten Sap, Margaret L. Kern, Johannes C. Eichstaedt, Adam Kapelner, Megha Agrawal, Eduardo Blanco, Lukasz Dziurzynski, Gregory Park, David Stillwell, Michal Kosinski, Martin E.P. Seligman, Lyle H. Ungar	
10:25-10:40	<i>Finding Potentially Unsafe Nutritional Supplements from User Reviews with Topic Modeling</i> <u>Ryan Sullivan</u> , Abeed Sarker, Karen O'Connor, Amanda Goodin, Mark Karlsrud, Graciela Gonzalez	
Discussion Sessions		Salon 2&3
10:40-11:40	Social Media Mining for Public Health Monitoring and Surveillance	
11:45-12:45	Regulatory RNA	
Break		
12:45-2:00	Lunch on Own	

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Pacific Symposium on Biocomputing (PSB) 2016 Schedule

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Thursday, January 7, 2016 (con't)

NIH Open Meeting

Salon 2&3

2:00-3:30

NIH Meeting, moderated by Larry Hunter

A SWOT Analysis of Big Data @ the NIH

Philip E. Bourne, Associate Director for Data Science, National
Institutes of Health

Funding Computational Research at NIGMS, and the New MIRA Program

Rochelle Long, Acting Director, PPBC Division, NIGMS, NIH

*Introduction to NLM Career Development Awards and Research Grants in
Biomedical Informatics*

Jane Ye, Program Officer, Division of Extramural Programs, NLM,
NIH

Break

3:30-5:30

Dinner

Coconut Grove

5:30-7:30

Dinner Party

Keynote:

Salon 2&3

7:30-8:45

Public Health Information in Social Networks

Winter Mason, with introduction by Marylyn Ritchie

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Pacific Symposium on Biocomputing (PSB) 2016 Schedule

January 4-8, 2016, Big Island of Hawaii

Friday, January 8, 2016

Breakfast		Ballroom Courtyard
7:30-8:30	Breakfast	
Closing		Salon 2&3
8:30-8:40	Closing Announcements	
Session 7: Methods to Enhance the Reproducibility of Precision Medicine		Salon 2&3
8:40-8:50	Introduction Arjun Manrai, Chirag Patel, Nils Gehlenborg, Nicholas Tatonetti, John Ioannidis, Isaac Kohane	
8:50-9:05	<i>Dynamically Evolving Clinical Practices and Implications for Predicting Medical Decisions</i> Jonathan H. Chen, Mary K. Goldstein, Steven M. Asch, Russ B. Altman	
9:05-9:20	<i>Identification of Questionable Exclusion Criteria in Mental Disorder Clinical Trials Using a Medical Encyclopedia</i> Handong Ma, Chunhua Weng	
9:20-9:35	<i>Repurposing Germline Exomes of the Cancer Genome Atlas Demands a Cautious Approach and Sample-Specific Variant Filtering</i> Amanda Koiré, Panagiotis Katsonis, Olivier Lichtarge	
9:35-9:50	<i>Reproducible Research Workflow in R for the Analysis of Personalized Human Microbiome Data</i> Benjamin Callahan, Diana Proctor, David Relman, Julia Fukuyama, Susan Holmes	
9:50-10:05	<i>Reproducible and Shareable Quantifications of Pathogenicity</i> Arjun K. Manrai, Brice L. Wang, Chirag J. Patel, Isaac S. Kohane	
Discussion Session		Salon 2&3
10:05-11:05	Methods to Enhance the Reproducibility of Precision Medicine	
Break		
11:05-12:30	Lunch on own	
Workshop		Salon 2&3
12:30-3:30	Social Media Mining Shared Task Workshop This workshop was designed to act as a platform for the application of state-of-the-art natural language processing systems on social media data. Using the DIEGO Lab Adverse Drug Reaction Twitter corpus, we prepared a shared task focusing on text classification and information extraction. Eleven teams participated in the shared task and several teams will be presenting their systems at the workshop. This workshop complements the Social Media Mining for Public Health Monitoring and Surveillance session.	
PSB over--see you next year!		

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

10 December 2015

Call for Session Proposals Pacific Symposium on Biocomputing

The Big Island of Hawaii, January 4-8, 2017

This is an invitation to submit proposals for sessions in the 22nd Pacific Symposium on Biocomputing (PSB), to be held January 4-8, 2017 on the Kohala Coast, the Big Island of Hawaii. PSB will bring together top researchers from the US, the Asian Pacific nations and around the world to exchange research for the presentation of work in databases, algorithms, interfaces, natural language processing, modeling and other computational methods, as applied to biological problems, with emphasis on applications in data-rich areas of molecular biology.

PSB has been designed to be responsive to the need for critical mass in sub-disciplines within biocomputing. For that reason, it is the only meeting whose sessions are defined dynamically each year in response to specific proposals. PSB sessions are organized by leaders in the emerging areas, and targeted to provide a forum for publication and discussion of research in biocomputing's "hot topics." In this way, PSB provides an early forum for serious examination of emerging methods and approaches in this rapidly changing field.

Proposals for such sessions are hereby solicited. A proposal should identify a coherent topic that can be addressed by 3 to 12 papers. For example, a session might bring together papers on alternative approaches to a particular biological question or it might examine the applications of a particular technology in a variety of biological areas. A sample of more than 20 different decisions at previous PSB meetings have included:

- Discovery of Molecularly Targeted Therapies
- Innovative Approaches to Combining Genotype, Phenotype, Epigenetic, and Exposure Data for Precision Diagnostics
- Methods to Enhance the Reproducibility of Precision Medicine
- Precision Medicine: Data and Discovery for Improved Health and Therapy
- Regulatory RNA
- Social Media Mining for Public Health Monitoring and Surveillance

A major goal of PSB is to create productive interaction among the rather different research cultures of computer science and biology. Recognizing that many in the computational community believe the value of a meeting depends on the quality of its review process, every full manuscript submitted to PSB is reviewed by at least two anonymous reviewers, as well as the session organizers and meeting chairs. Accepted papers are distributed in a proceedings volume at the meeting, and are indexed in Medline and other bibliographic databases. However, we also recognize that many potential participants, particularly from the biological community, do not choose to submit full papers to conferences, even with assurance of availability and broad indexing. Therefore, PSB also includes a separate open submission abstract book and open poster presentations in which any registrant can present research.

Responsibilities of a session chair

As a proposer of an accepted session, you will become the session chair. The chair's primary responsibility is to solicit high quality papers for the session, oversee the review, and write a tutorial introduction to your session. You are to solicit manuscripts, have them refereed, collaborate with the conference chairs in determining which manuscripts are to be accepted and structure presentation time in your session. Please contact us at the address below if you have any questions about the obligations entailed in becoming a session organizer.

**Call for Session Proposals
Pacific Symposium on Biocomputing**

The Big Island of Hawaii, January 4-8, 2017

Procedure for submitting proposals

Session proposals can be as short as a single page and should in no case be more than 6 pages. The proposal should:

- Define a specific technical area to be covered.
- Justify why the proposed area is appropriate for PSB. Discuss why the topic is timely and important, and how the topic has been addressed in other conferences or recent publications.
- Argue that there is likely to be sufficient high quality, unpublished material to fill the session, e.g., a list of researchers you intend to solicit for papers. If there are unlikely to be adequate paper submissions, consider applying for a [PSB workshop](#) instead.
- Provide a short autobiographical sketch and an explicit statement that your organization endorses your involvement.
- Proposals must be submitted online at <http://psb.wufoo.com/forms/psb-session-proposal-submission-form/>.

Important Dates

February, 15, 2016	Proposals Due
March 15, 2016	Notification Regarding the Proposals

Each proposal will be evaluated by the organizing committee. We look forward to your submissions.

Questions? Please send email to

Lawrence Hunter, Ph.D.

Director, Center for Computational Pharmacology & Computational Bioscience Program
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E-mail: larry.hunter@ucdenver.edu

Call for Workshop Proposals
Pacific Symposium on Biocomputing

The Big Island of Hawaii, January 4-8, 2017

This is an invitation to submit proposals for workshops at the 22nd Pacific Symposium on Biocomputing (PSB), to be held January 4-8, 2017 on the Kohala Coast, the Big Island of Hawaii. PSB will bring together top researchers from the US, the Asian Pacific nations and around the world to exchange research for the presentation of work in databases, algorithms, interfaces, natural language processing, modeling and other computational methods, as applied to biological problems, with emphasis on applications in data-rich areas of molecular biology.

We are soliciting proposals for three hour workshops appropriate to the diverse PSB conference community. Workshops can include: panels of experts on emerging areas of computational biology that are not likely to attract the number of paper submissions required for a session; open discussions of topics important to the computational biology community; or other topics and formats. Workshops at previous PSB meetings have included:

- Computational Biology in the Cloud: Methods and New Insights from Computing at Scale
- Computational Challenges of Mass Phenotyping
- Computational Identification and Functional Analysis of Non-Coding RNAs
- The Future of Genome-Based Medicine
- Modeling Cell Heterogeneity: from Single-Cell Variations to Mixed Cells Populations
- Training the Next Generation of Quantitative Biologists
- Uncovering the Etiology of Autism Spectrum Disorders: Genomics, Bioinformatics, Environment, Data Collection and Exploration, and Future Possibilities

Responsibilities of a workshop chair

As a proposer of an accepted workshop, you will become the workshop chair. The chair's primary responsibility is to organize and preside over the presentations related to your workshop.

Procedure for submitting proposals

Proposals can be as short as a single page and should in no case be more than 6 pages. The proposal should:

- Define a specific technical area to be covered, and a format for the workshop.
- Justify why the proposed area is appropriate for PSB. Discuss why the topic is timely and important, and how the topic has been addressed in other conferences or recent publications. Describe why the proposed format is appropriate for the workshop.

**Call for Workshop Proposals
Pacific Symposium on Biocomputing**

The Big Island of Hawaii, January 4-8, 2017

Procedure for submitting proposals (continued)

- If the workshop proposes invited experts, provide evidence that the experts will attend the workshop. Participants are required to register for the conference, and, unlike sessions, no financial support from the conference is offered to workshop organizers. Emails from potential participants are sufficient.
- Provide a short autobiographical sketch and an explicit statement that your organization endorses your involvement.
- Proposals must be submitted online at <https://psb.wufoo.com/forms/psb-workshop-proposal-submission-form/>.

Important Dates

February 13, 2016 Proposals Due

March 13, 2016 Notification Regarding the Proposals

Each proposal will be evaluated by the organizing committee. We look forward to your submissions.

Questions? Please send email to

Lawrence Hunter, Ph.D.

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Pacific Symposium on Biocomputing 2016

Abstract Book Table of Contents and Index Only

The full abstract book is available at
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and in print at the PSB Registration Desk.

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Proceedings papers with oral presentations #11-48 are not assigned poster space.

Papers are organized by session and then the last name of the first author.

Presenting authors' names are underlined in the Table of Contents and in the list of authors on the abstracts.

All authors appear in the Author Index.

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