

PACIFIC SYMPOSIUM ON BIOCOMPUTING 2015

2015 marks the 20th Pacific Symposium on Biocomputing (PSB)! PSB was founded by Larry Hunter and Teri Klein, who had previously organized a Biocomputing session at HICSS (Hawaii International Conference on Systems Sciences) which grew too big for its host conference. They decided to split the Biocomputing track and created PSB—in the early years they recruited Russ Altman and Keith Dunker as co-organizers, and were pleased to add Marylyn Ritchie more recently. The mission of PSB is to provide a forum for the best emerging science in Biocomputing, providing both formal and informal mechanisms for scientific communication—with an emphasis on work in the pacific rim. In addition to being published by World Scientific and indexed in PubMed, the proceedings from all PSB meetings are available online at <http://psb.stanford.edu/psb-online/>. PSB has published more than 800 papers. These papers are often cited in journal articles that emerge early in the growth of a new subfield, and many papers have achieved hundreds of citations. The Twitter handle PSB 2015 is @PacSymBiocomp and the hashtag this year will be #psb15.

PSB depends on the community to define emerging areas in biomedical computation. Its sessions are usually conceived at the previous PSB meeting as people discuss trends and opportunities for new science. The typical program includes sessions that evolve over two to three years as well as entirely new sessions. This year we revisit cancer and personalized medicine (which continue to advance at dazzling speed), and add new sessions on crowdsourcing and gene-environment exposures. The efforts of a dedicated group of session organizers has produced an outstanding program, including introductory tutorials. The sessions of PSB 2015 and their hard-working organizers are as follows:

Cancer Panomics: Computational Methods and Infrastructure for Integrative Analysis of Cancer High-Throughput "Omics" Data to Enable Precision Oncology

Soren Brunak, Francisco M. De La Vega, Adam Margolin, Ben J. Raphael, Gunnar Raetsch, Joshua M. Stuart

Characterizing the Importance of Environmental Exposures, Interactions between the Environment and Genetic Architecture, and Genetic Interactions: New Methods for Understanding the Etiology of Complex Traits and Disease

Sarah A. Pendergrass, Shefali Setia Verma, Molly Hall, Jason H. Moore, Brendan Keating, Scott Selleck, Greg Gibson, Folkert Asselbergs, Heather Volk, Issac Pessah, Dennis Wall, Daniel B. Campbell

Crowdsourcing and Mining Crowd Data

Robert Leaman, Benjamin Good, Andrew Su, Zhiyong Lu

Personalized Medicine: From Genotypes, Molecular Phenotypes and the Quantified Self, Towards Improved Medicine

Joel Dudley, Steven E. Brenner, Jennifer Listgarten, Leopold Parts, Oliver Stegle

Cancer Pathways: Automatic Extraction, Representation, and Reasoning in the Big Data Era

Graciela H. González, Chitta Baral, Suengchan Kim, Jeff Kiefer, Jieping Ye

We are also pleased to present four workshops in which investigators with a common interest come together to exchange results and new ideas in a format that is more informal than the peer-reviewed sessions. For this year, the workshops and their organizers are:

Human Evolutionary Genomics and the Search for the Genes that Made Us Human

James M. Sikela

Training the Next Generation of Quantitative Biologists in the Era of Big Data

Kristine A. Pattin, Anna C. Greene, Jason Moore

Discovery Informatics in Biological and Biomedical Sciences: Research Challenges and Opportunities

Vasant G. Honavar

Including the Public in Research Projects: The impact on informatics arising from emerging health research paradigms

Richard Gayle, Mark Minie and Erik Nilsson

We thank our keynote speakers David Haussler (Science keynote) and Lucila Ohno-Machado (Ethical, Legal and Social Implications keynote).

Tiffany Murray has managed the peer review process and assembly of the proceedings since 2003, and also plays a key role in many other aspects of the meeting. We are grateful for the support of the Computational Genetics Laboratory at Dartmouth College; the Institute for Computational Biology, a collaborative effort of Case Western Reserve University, the Cleveland Clinic Foundation, and University Hospitals; and DNAnexus for their support of PSB 2015. We also thank the National Institutes of Health, the National Science Foundation, and the International Society for Computational Biology (ISCB) for travel grant support. We are particularly grateful to the onsite PSB staff Al Conde, Brant Hansen, Georgia Hansen, BJ McKay-Morrison, Jackson Miller, Kasey Miller, and Paul Murray for their assistance. We also acknowledge the many busy researchers who reviewed the submitted manuscripts on a very tight schedule. The partial list following this preface does not include many who wished to remain anonymous, and of course we apologize to any who may have been left out by mistake.

We look forward to a great meeting once again.

Aloha!

Pacific Symposium on Biocomputing Co-Chairs,
October 12, 2014

Russ B. Altman

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A. Keith Dunker

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Lawrence Hunter

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Thanks to the reviewers...

Finally, we wish to thank the scores of reviewers. PSB aims for every paper in this volume be reviewed by three independent referees. Since there is a large volume of submitted papers, paper reviews require a great deal of work from many people. We are grateful to all of you listed below and to anyone whose name we may have accidentally omitted or who wished to remain anonymous.

Zaky Adam	Christophe Giraud-	Ake Lu	Sriganesh Srihari
Rehan Akbani	Carrier	Morgan Magnin	Oliver Stegle
Frank Albert	Anthony Gitter	Matt Mahoney	Yan Sun
Chloe-Agathe Azencott	Anna Goldenberg	Kimberly McAllister	Yasuo Tabei
Terri Beaty	Graciela Gonzalez	Simon McCallum	Tasnia Tahsin
Gurkan Bebek	Mehmet Gonen	Matthew McKenna	Haixu Tang
Brady Bernard	Assaf Gottlieb	Brett McKinney	Luis Tari
Theresa Marie Bernardo	Casey Greene	Jeremy Miller	Duncan Thomas
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Debashis Ghosh	Han Liang	Takehide Soh	
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