



Newsletter

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Features



**ISMB/ECCB 2015 Recap —
A Meeting to Remember!**

**2015 ISMB
Art & Science Winner**



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**ISCB. The leading professional society for
computational biology and bioinformatics community.**



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ISMB/ECCB 2015 Recap - A Meeting to Remember

By Christiana N. Fogg, Ph.D.

ISMB/ECCB 2015 will go down as one of the most memorable and engaging meetings in ISCB's history. Dublin charmed meeting attendees with its world renowned hospitality and historic sites. The meeting featured a streamlined theme-driven conference program and a captivating panel of keynote speakers.

ISCB president Alfonso Valencia opened ISMB/ECCB 2015 officially on Sunday, July 12 to a packed auditorium at the Convention Centre Dublin and gave an overview of ISCB's activities during the last year. Desmond Higgins, honorary conference chair and Dublin local, also welcomed delegates to his hometown, and Burkhard Rost, ISCB past-president, introduced the opening keynote speaker, Nobel Laureate Michael Levitt from Stanford University. Levitt mesmerized the audience with his talk titled, "Fun With Large Structures and Masses of Sequence," and shared his perspective of the early days of computational biology as well as his current work using molecular dynamic simulation and molecular modeling.

Concurrent sessions started after the keynote address and were organized by themes this year (Genes, Proteins, Systems, Disease, and Data) to make identifying relevant talks easier for attendees.



The 2015 class of ISCB Fellows was recognized prior to the second keynote address. Rolf Apweiler, Cyrus Chothia, Julio Collado-Vides, Mark Gerstein, Desmond Higgins, Thomas Lengauer, Michael Levitt, and Burkhard Rost were conferred Fellow status for their outstanding contributions to the fields of computational biology and bioinformatics. Bonnie Berger, chair of the ISCB nominating committee introduced the second keynote speaker, Curtis Huttenhower of the Harvard T.H. Chan School of Public Health, who is the winner of the 2015 Overton Prize that recognizes the outstanding accomplishments an early career scientist in computational biology or bioinformatics. Huttenhower gave a talk titled, "Understanding microbial community function and the human microbiome in health and disease" and shared results from the diverse microbiome research projects coming out of his lab. The first official day of ISCB/ECCB 2015 wrapped up

with a lively poster reception in the exhibit hall, where delegates talked science and browsed the latest offerings of exhibitors.

The second day of ISMB/ECCB 2015 opened with greetings by ECCB committee member Anna Tramontano, followed by Jaap Heringa introducing ECCB's 2016 meeting location at The Hague, Netherlands. Conference co-chair Janet Kelso introduced keynote speaker Eileen Furlong of European Molecular Biology Laboratory (EMBL) in Heidelberg, Germany, who gave a talk titled "Genome regulation during embryonic development." The day's sessions were packed with great talks across theme areas, and two special sessions on translational medicine informatics and data complexity that drew a lot of interest from conference delegates.

During the open business meeting, ISCB president Alfonso Valencia and other members of the executive committee and board highlighted the society's endeavors to serve its members in multiple areas, including member services, meetings, and publications. ISCB Student Council members discussed their activities and recognized the student attendees to whom they awarded travel fellowships. The meeting finished with an opportunity for attendees to share their comments and ideas about different ways ISCB can serve its membership.

Conference co-chair Desmond Higgins introduced day two's second keynote speaker, Kenneth Wolfe of the University College Dublin, who presented a talk titled "Reversible DNA rearrangement as a switch for cell type in yeasts." The day finished with another successful poster session in the exhibit hall and a memorable evening out at the Guinness Storehouse.

The final day of ISMB/ECCB 2015 opened with a sneak peak at ISMB 2016 in Orlando, Florida by conference co-chair Teresa Przytycka, including a spotlight on three of the keynote speakers: Ruth Nussinov, Sandrine Dudoit, and Sarah Teichmann. Alex Bateman then introduced the 2015 ISCB Senior Scientist award winner Cyrus Chothia of MRC Laboratory of Molecular Biology, Cambridge, United Kingdom, who shared words of wisdom and gratitude with the audience, and was then honored by three reflections given by long-time collaborator Arthur Lesk and former students Steven Brenner and Julian Gough. The last round of sessions included many dynamic talks, including a special session on Crowd-Sourced Bench-

marking of Somatic Mutation and a unique and timely special talk by David Searls titled, "James Joyce's Ulysses: A Bioinformatics Perspective."

The exhibit hall buzzed during the last day of the meeting with many attendees spending time with exhibitors and networking with each other.



The meeting closed with the ISCB Fellows keynote address by Amos Bairoch of the Swiss Institute of Bioinformatics titled, "neXtProt 2015 highlights: SPARQL endpoint and biocuration efforts around the human protein variome." The final keynote talk was followed by an awards ceremony for students that included the Ian Lawson Van Toch Memorial Award for Outstanding Student Paper, Outstanding Oral Poster Presentation Prize sponsored by University of California Berkeley Center for Computational Biology, F1000Research Poster Awards, RCSB PDB Poster Prize, Springer Outstanding Poster Award and Wiley Poster Prizes. Alex Bateman, organizer of the Wikipedia article competition, announced the 2015 winners of this competition that recognizes students and trainees for the best contributions to computational biology-related articles. The conference wrapped up with messages of gratitude for all who were involved with the planning and execution of yet another outstanding conference.

ISCB members and conference attendees can view many of the talks delivered at ISCB/ECCB 2015 via ISCBtv (<http://www.iscb.org/iscb-multimedia>). The ISCBtv platform brings the meeting to members and attendees across the world at any time of day, and lets them catch those talks they might have missed in person or would really like to view again.

Promote the Value of ISCB, Help Grow our Membership

By Diane Kovats, CMP, CAE

You've seen first-hand the value in ISCB membership, and now its time to share that value, your stories of ISCB with your students, colleagues, and friends. Through our member-get-a-member campaign, we are asking members to be advocates of ISCB, to help us recruit new members and encourage previous members to come back. Our goal is to grow our membership, be the leading professional society for computational biology and bioinformatics, and the voice of our science.

Why is membership growth important? ISCB strives to develop a variety of programs for our members. Unfortunately, implementing these programs comes at a cost to the organization. Through our Student Council, ISCBconnect, ISCBtv, and worldwide conferences, we strive to get our members connected and engaged. Increased membership participation, allows us to do even more! Imagine more travel fellowships, online training, complimentary e-books, or even recorded talks from all of the official ISCB conferences. As membership grows, ISCB can use the additional funding to invest back in the organization and offer new programs.

As a special incentive to participate in our member-get-a-member campaign, ISCB will be offering discounted registrations to ISMB, the flagship meeting of ISCB, or a ISCB official conference of choice, and a chance to win a ISMB conference package which will include a complimentary registration, 4-night hotel stay, and invitation to a special reception.

Recruit 5 members – receive 20% off ISMB registration (or ISCB official conference of choice)

Recruit 10 members – receive 25% off ISMB registration (or ISCB official conference of choice)

Recruit 15 members – receive 35% off ISMB registration (or ISCB official conference of choice)

Recruit 25 members – receive 50% off ISMB registration (or ISCB official conference of choice)

The member who recruits the most members will receive:

Complimentary ISMB registration
4-night hotel stay at headquarter hotel
Invitation to VIP reception

Campaign Rules

1. During the registration process, the new/renewing member** must place your name in the "Referred by ISCB member" field. This is very important and is

the only way we can track the number of members you recruit.

2. Conference registration discount must be used in the current year of the campaign and cannot be carried to future years.

3. The member who recruits the most members by 31 May 2016 will receive the grand prize ISMB package. The member-get-a-member campaign will run from Nov. 2, 2015 – Dec. 31, 2016. Each member participating in the program may receive a maximum of one conference discount per year.

** A new member is considered to be anyone who has not been a part of ISCB in the past. A renewing member is considered to be anyone with a membership that has been inactive for one year or more. Recruitment credit is not given to members who are up for renewal in the current year.

Recruitment Resource Center

Do you have a vast network of potential members but aren't sure how to approach them or what information to provide? See below for a list of recruitment tips.

- Identify the best prospects. Review your network of professional colleagues and identify who could benefit from ISCB membership.
- Know the benefits of membership. Review the Who We Are, What We Do, Become A Member pages to provide prospects with more information about ISCB and membership benefits.
- Give examples. Provide your colleague with examples of how your ISCB membership has benefitted you in your career. A positive testimonial can be a great recruitment tool!
- Keep Membership Materials Handy. Print out copies of the paper membership application to distribute at your next event. If you would like additional recruitment materials, reach out ncostello@iscb.org.
- Invite your prospects to upcoming conference.
- Close with a plan of action. Walk them through the process of applying for membership. Provide them with a hard-copy of the ISCB membership application or guide them to apply online.
- Follow up. Check back in a few weeks to see whether they have joined and ask if they have any questions.

Meet the Newly Elected Members of the Executive Committee and Board

By Christiana N Fogg, Ph.D.

This year the ISCB membership re-elected Terry Gaasterland to the Executive Committee (EC) as vice president and elected Bruno Gaeta to the EC. Newly elected board members include Yana Bromberg, Iddo Friedberg, and Yves Moreau. Their terms start in January 2016 and their expertise, experience, and dedication to ISCB will enrich the executive committee and board.

Re-elected Vice President



Terry Gaasterland, Ph.D. is a professor of computational biology and genomics at the University of California, San Diego and director of the Scripps Genome Center. Gaasterland develops and applies computational methods to better understand biological processes, especially diseases of the eye like glaucoma and macular degeneration. She is a founding member of the ISCB Board of Directors and has served the society in numerous capacities including secretary, FASEB Board of Directors advisor, and ISMB co-chair.

Newly Elected Treasurer



Bruno Gaeta, Ph.D. is a senior lecturer and bioinformatics program director in the School of Computer Science and Engineering at the University of New South Wales in Australia. His research interests include engineering computational methods to understand the immune system, with a particular focus on immunoglobulins and immune memory, especially with respect to vaccine development. Gaeta has been involved with the ISCB in several ways, including serving on the ISCB Board, and working as a member of the ISCB affiliates committee and education committee.

Newly Elected Board Members:



Yana Bromberg, Ph.D. is an assistant professor in the Department of Biochemistry and Microbiology at the School of Environmental and Biological Sciences of Rutgers University. Her research includes using bioinformatics to predict protein function, and analysis of genome variation with a goal of understanding an individual's disease propensity based on one's genome and exome data. Bromberg has served the ISCB community as an ISMB/ECCB poster session chair for several years and was chair of the disease theme area for the 2015 ISMB/ECCB meeting in Dublin.

Iddo Friedberg, Ph.D. is an associate professor in the Department of Veterinary Microbiology and Preventive Medicine at Iowa State University. Friedberg's research interests include large scale analysis of proteins, genomes, and metagenomes, with specific work on bacterial genome evolution, function prediction, and structural signatures. Friedberg has been involved with ISCB in various ways including service on the COSI task force, member of the publications committee, and ISMB/ECCB poster session chair.



Yves Moreau, Ph.D. is a professor of engineering at the University of Leuven. His research is focused on congenital genetic diseases and includes developing computational methods for disease diagnosis and disease gene discovery. Moreau has supported the ISCB community by serving as conference co-chair or proceedings co-chair for multiple meetings including ISMB and ECCB.



Re-Elected Board Members

Alex Bateman, Ph.D. is a senior team leader of protein sequence resources at the EM-BL-EBI (European Bioinformatics Institute) in Cambridge, England. His research involves the development and maintenance of several critical databases including UniProt, Pfam, Rfam, TreeFam and MEROPS. Bateman has served ISCB in several ways, including his work as a Board member, the coordination of the annual ISCB computational biology Wikipedia competition, and his service as conference co-chair for ISMB/ECCB 2015 in Dublin, Ireland.



Anupama Jigisha is the re-elected ISCB Student Council representative to the ISCB Board of Directors. Jigisha is currently a graduate student at University College Dublin in Ireland and her research includes developing machine learning techniques to predict essential genes in pathogenic fungi.



FASB Report

By Debra Speert, Ph.D., Director of Communications, FASEB

Working on behalf of ISCB and other members, the Federation of American Societies for Experimental Biology (FASEB) actively advocates for increased science funding. FASEB and its member societies issued a letter on September 30 urging Congress to pass a funding bill for fiscal year 2016 that supports critically needed new investment in research.

To assist FASEB members in their own advocacy efforts, FASEB is issuing and updating resources, including a new factsheet available in print or online. With budget negotiations stalled pending changes in congressional leadership, dialogue with policymakers will be key to ensuring that the voices of our members are heard. FASEB also issued an e-Action alert on October 8 calling on scientists to contact their Senators and Representatives on behalf of increased funding for the National Institutes of Health (NIH) and National Science Foundation (NSF).

FASEB is also engaging in a dialogue about the rigor, reproducibility, and reporting of science following the announcement last June of a new NIH policy to address rigor and transparency in grant applications scheduled to go into effect in January 2016. On October 16, NIH released a notice addressing the implementation of rigor and transparency in NIH and Agency for Healthcare Research and Quality Research Grant Applications.

On May 31, members of the FASEB Science Policy Committee and Board of Directors participated in a full-day exchange about scientific rigor and reproducibility. Held in conjunction with the June meeting of FASEB's Board of Directors, the annual Science Policy Symposium featured speakers from NIH, the National Science Foundation (NSF), and representatives from private stakeholder organizations, including the Global Biological Standards Institute (GBSI), American Type Culture Collection (ATCC), and Science Exchange. The speakers challenged attendees to considering underlying causes that might lead to inconsistent research findings. Judith Blake, PhD, who represented ISCB last year on the FASEB Board of Directors and Harel Weinstein, DSc, who represents ISCB this year on the FASEB Board of Directors and Science Policy Committee, participated in the event.

Following the symposium, FASEB developed a series of three focused roundtable discussions on scientific rigor, reproducibility, and reporting. The first dialogue in

August focused on the challenges of research with mouse models. Participants explored variables in an animal's environment, genetic factors, and pathogen and microbiome status that make reproducing mouse studies difficult.

The second roundtable in September explored ways to improve the reproducibility of scientific studies that use antibodies. The discussion featured presentations by five experts in the field from government, industry, clinical, and academic laboratories who described different strategies to validate antibodies and the studies that use them.

At the first two roundtable meetings, participants developed draft guidelines for investigators to consider and report in applications for federal funding. Those guidelines were revisited and revised during the third roundtable. In addition to representatives from FASEB member societies, this meeting included participants from other organizations in the biological and biomedical research community, such as the Society for Neuroscience and Biophysical Society. FASEB is preparing a series of guidelines that will help researchers comply with the new grant policies on rigor and reproducibility to be released in January.

For up-to-date information on FASEB's Public Affairs activities, sign up to receive FASEB's Washington Update at <http://washingtonupdate.faseb.org/>.



ISCB Introduces Senior Member Designation

By Diane Kovats, CMP, CAE

In an effort to find ways to further highlight the achievements of our members and reward members for their support and dedication to ISCB, ISCB is pleased to introduce the ISCB Senior Member designation.

In 2014, after the results of the membership assessment survey were released to the ISCB Board of Directors, ISCB initiated several task forces to analyze the Society and identify areas of weakness. The Benefits and Program Analysis Task Force identified the need to provide additional incentives for professional members to encourage them to renew their membership annually and reward those members who have shown support to ISCB over the years. After careful deliberation and discussion, the task force recommended the establishment of the ISCB Senior Member designation.

A successful candidate for Senior ISCB Member must have demonstrated sustained contributions to the field of computational biology or to ISCB.

Criteria for the Elevation to a Senior member Status:

1. Five or more years of continuous professional membership in ISCB at the time of nomination.
2. Ten years of professional experience in the field.*
3. Demonstrated sustained professional performance.**

* The ten-year period begins in the year of earning doctoral degree or its equivalent. Candidates with pre-doctoral degrees can use five years of additional professional experience as a substitute for doctoral degree.

** The successful candidate for Senior ISCB Member demonstrates sustained professional performance (in a teaching, research, or development capacity in the field of computational biology) by securing three endorsements from eligible ISCB members. Eligible endorsers are professional ISCB members in good standing from the following groups: ISCB Fellows, current and past ISCB Board of Directors members, and Senior ISCB Members.

Initiating Senior Member Status:

An ISCB professional member can self-nominate via an online form for elevation to senior member status or be nominated by any of the eligible endorsers. After the ISCB staff verifies that a candidate meets the first criteria, all endorsers are given an opportunity to endorse the candidate. Each eligible candidate securing three or more endorsements (excluding self) will be elevated to the status of senior member. As

the endorsers are not required to participate in voting, senior member candidates are encouraged to contact a small number of eligible endorsers to secure their support through personal interaction.

Maintaining and Re-establishing the Senior Member Status:
The senior ISCB member must remain in good standing to retain his or her status. If good standing is not maintained, the senior member status becomes invalid. Senior member status is automatically re-established when the member returns to good standing. However, if a senior member has more than a one-year lapse in membership and returns to good standing, he/she will not receive the 10% registration discount to ISCB official conferences unless he/she remains in good standing for two-consecutive years.



Benefits to Senior Member Status:

As a Senior Member of the Society, members enjoy

- Recognition on the ISCB website featuring our Senior Members
- Special recognition ribbons at ISCB official conferences
- Opportunity to be selected for keynote speaking positions, important steering committees, and other leadership roles
- Annual 10% registration discount off the early member rate for a select ISCB official conference of choice
- Special ISCB Senior Member logo for website and CV

Nominations for ISCB Senior Members will open on 2 November 2016. Members who pre-qualify (have 5-years of consecutive membership) for the designation will receive an email with instructions on how to complete the form. To check your membership status or learn more, please contact us at executive.office@iscb.org.

ISCB ANNUAL AWARDS

Nominate a Deserving Scientist Today for One of Four ISCB Annual Awards!

Nominations are now open! Deadline: December 2, 2015

Overton Prize Award

The Overton Prize was established by the ISCB in memory of G. Christian Overton, a major contributor to the field of bioinformatics and member of the ISCB Board of Directors who died unexpectedly in 2000. The annual prize is awarded for outstanding accomplishment to a scientist in the early to mid stage (up to 8 years post-degree) of his or her career.

Outstanding Contributions to ISCB Award

The Outstanding Contributions to ISCB Award is in recognition of outstanding service contributions by any member toward the betterment of ISCB through exemplary leadership, education, service, or a combination of the three.

Nominees must be members of ISCB!

Accomplishments by a Senior Scientist

The Senior Scientist Accomplishment Award recognizes members of the computational biology community who are more than 12 to 15 years post-degree and have made major contributions to the field of computational biology through research, education, service, or a combination of the three.

Overton Prize Award

The ISCB "Mid-Career" Award is in recognition of leading scientists who are within two decades post-degree and have consistently made outstanding contributions over time.



Nominations from all regions of the world are submitted annually, and the selection of award winners is made by an international panel of current and past ISCB Board members. The complete award nominations policies and procedures can be viewed [here](#).



The Bioinformatics Open Source Conference (BOSC 2015)

By **Nomi L. Harris**, Lawrence Berkeley National Laboratory, Berkeley, CA, USA, **Peter J. A. Cock**, The James Hutton Institute, Dundee DD2 5DA, UK, **Brad Chapman**, Bioinformatics Core, Harvard School of Public Health, Boston, MA, USA, **Christopher Fields**, National Center for Supercomputing Applications, University of Illinois Urbana-Champaign, Urbana, IL, USA, **Hilmar Lapp**, Center for Genomic and Computational Biology, Duke University, Durham, NC, USA

Introduction

The 16th annual Bioinformatics Open Source Conference (BOSC 2015, http://www.open-bio.org/wiki/BOSC_2015) was held in Dublin, Ireland in July 2015. Co-chaired by Nomi Harris and Peter Cock, the conference brought together over 125 bioinformatics researchers, developers and users of open source software. BOSC is organized by the Open Bioinformatics Foundation (OBF), a non-profit group dedicated to promoting the practice and philosophy of Open Source software development and Open Science within the biological research community. The OBF was one of the founding ISCB Communities of Special Interest (COSI), a program formally launched in 2014. Since its beginning in 2000, BOSC has been run as a two-day Special Interest Group (SIG) before the annual ISMB conference.

BOSC is a forum for bioinformatics developers to communicate the results of their latest efforts to the wider research community. The conference also provides a focused environment for developers and users to interact and share ideas about standards, software development practices and practical techniques for solving bioinformatics problems. The scope of BOSC encompasses the wide range of open source bioinformatics software being developed, and also includes the growing movement of Open Science, which emphasizes transparency, reproducibility, and data provenance. Talks typically discuss new computational methods, reusable software components, visualization, interoperability, and other approaches that help to advance research in the biomolecular sciences.

BOSC includes two days of talks, posters, a panel discussion, and Birds of a Feather interest groups (BOFs). Session topics this year included Data Science; Standards and Interoperability; Open Science and Reproducibility; Translational Bioinformatics; Visualization; Bioinformatics Open Source Project Updates; and a session for late-breaking lightning talks. In addition to two keynote talks, the program included 19, 15-minute talks and 24, 5-minute lightning talks, as well as 33 posters. The complete program is available online at http://www.open-bio.org/wiki/BOSC_2015_Schedule. Links to articles, blog posts, and Twitter summaries (there were over 2000 tweets about

#BOSC2015) can be found there as well. Most of the slides and posters from BOSC 2015 are hosted on an F1000 Research Channel (<http://f1000research.com/channels/BOSC>), and talk videos can be found on the BOSC YouTube playlist (<https://www.youtube.com/playlist?list=PLir-OO-QiOhXbENjAIfF-JZ0WodnysPqfh>).

Panel

In recent years, BOSC has included a panel discussion that offers all attendees the chance to engage in conversation with the panelists and each other. In 2015, the panel was titled "Open Source, Open Door: increasing diversity in the bioinformatics open source community", and focused on the important topic of what can be done to increase the diversity of participants in BOSC in particular, and in open source bioinformatics in general. Chaired by Mónica Muñoz-Torres, the panel included Holly Bik (who was also one of the keynote speakers), Michael R. Crusoe, Aleksandra Pawlik and Jason Williams. The panel arose as a follow-up to a 2014 Birds of a Feather session on the diversity issue, and aimed to solicit actionable ideas about what we can do to make everyone feel welcome, both at BOSC and in the communities of its constituent open source projects.

Keynote talks

Keynote talks by researchers who are influential in some aspect of open source bioinformatics are a popular part of BOSC. Past speakers include bioinformatics luminaries such as Phillip Bourne, Sean Eddy, Jonathan Eisen, and Carole Goble. The keynote speakers at BOSC 2015 were Holly Bik and Ewan Birney.

Holly Bik is a Birmingham Fellow (Assistant Professor) in the School of Biosciences at the University of Birmingham, UK. Her research uses high-throughput environmental sequencing approaches (rRNA surveys, metagenomics) to explore biodiversity and biogeographic patterns in microbial eukaryote assemblages. In her keynote talk, titled "Bioinformatics: Still a scary world for biologists," Dr. Bik discussed her transition from biology to bioinformatics, and what some of the barriers were. This provided a valuable perspective to conference attendees who are largely focused on bioinformatics and may be less aware of how

to make their software tools accessible to biologists who aren't programmers. Ewan Birney is Joint Director of EMBL-EBI and is known for his role in annotating the human, mouse, and other genome sequences. He led the analysis group for the ENCODE project, which aims to define functional elements in the human genome. He was also one of the early leaders of the BioPerl project, and a cofounder of the OBF. In his talk, "Big Data in Biology," Dr. Birney began by providing a high-level picture of the importance of sequencing technology and the impact its evolution has had on biology and bioinformatics. He went on to discuss why open source matters; how deeply we rely on scalable infrastructure; and how information could be stored efficiently in DNA.

Encouraging diversity at BOSC

Inclusivity was one of the founding principles of BOSC, and a non-discrimination clause has been included from the outset in the bylaws of OBF, the organization that runs the conference. In an effort to more effectively promote diversity in BOSC and the bioinformatics open source community at large, we have recently stepped up our inclusivity endeavors. Diversity in this context encompasses many aspects, including academic background, biological specialty, gender, ethnicity, age and geographical location. We successfully lobbied the ISCB to adopt a code of conduct across its branded conferences; reached out to organizations that support groups that are underrepresented in bioinformatics and open source software to promote BOSC to a broader audience; and sponsored registration for some speakers who would otherwise have faced financial barriers to attend BOSC. Based on a survey of the room, around half of the BOSC 2015 attendees were there for the first time, evidence that the outreach efforts have made a positive impact.

In addition to the diversity panel (described earlier), the 2015 meeting included smaller changes aimed at boosting participation by all attendees, such as giving attendees the option to ask questions after talks anonymously by writing them on notecards (an idea proposed by panelist Michael R. Crusoe, who was inspired by a blog post by Valerie Aurora) or tweeting them to us. This approach seemed to be successful at encouraging questions from people who might not have felt comfortable standing up and asking them, and we plan to continue it at future BOSCs.

Affiliated events

Since 2010, we have organized a two-day collaborative community development event prior to BOSC, called Codefest. The event is open to anyone interested, has no

registration costs, and provides a venue for open source bioinformatics developers to meet in person to work on or plan joint projects. Codefest 2015 (http://www.open-bio.org/wiki/Codefest_2015) was held at Trinity College, Dublin, and was attended by over 30 people who worked together on projects that included extensions to the Common Workflow Language, CWL (which was initiated at the 2014 Codefest), increased support of Galaxy and CWL for EDAM, and improvements to parsing and debugging in Biopython.

The years when ISMB and BOSC are held in North America, which makes attending Codefest more difficult for developers based in Europe, EU-Codefests similar in format and spirit to the BOSC-affiliated Codefests have been held. Occasionally, BOSC also partners with other organizations to co-organize collaborative development-oriented events, such as the BOSC/Broad Interoperability Hackathon that was held in April 2013.

BOSC 2016

BOSC 2016 will take place in Orlando, FL, on July 8-9, just before the ISMB 2016 meeting. BOSC is run by volunteers; those interested in helping out are encouraged to contact the organizing committee at bosc@open-bio.org.

Sponsorships

Sponsorships from several companies enabled us to pay for videorecording BOSC 2015 and to offer free registration to some speakers who would otherwise have found it financially difficult to attend. We are grateful to Google for their generous support for videorecording BOSC 2015, and to our returning sponsors Curoverse (the team behind the open source platform Arvados) and GigaScience. We also welcomed Bina as a new sponsor.

Acknowledgements

BOSC is a community effort. We thank all those who made BOSC 2015 possible, including the organizing committee, the review committee, the session chairs, our sponsors, and the ISMB SIG chair, Steven Leard. The 2015 organizing committee consisted of Nomi Harris and Peter Cock (Co-Chairs) along with Brad Chapman, Rob Davey, Chris Fields, Sarah Hird, Karsten Hokamp, Hilmar Lapp, and Mónica Muñoz-Torres. The members of the review committee are listed at http://www.open-bio.org/wiki/BOSC_2015#Review_Committee.

JOIN YOUR **COSI**

Community of Special Interest



AND CONNECT

Communities of Special Interest (COSIs) are member communities of shared interest that are self-organized and have multiple activities or interactions throughout the year, rather than solely meeting during the SIG program of the ISMB conference. An important goal of any COSI is to foster a topically-focused collaborative community wherein scientists communicate with one another on research problems and/or opportunities in specific areas of computational biology.

Which COSIs
are right for
you?

Find
out at

www.iscb.org/iscb-cosis

The **NEW** ISCBconnect allows COSIs to easily communicate, engage, share, and connect in an easy to use online forum.



Each user has a customized homepage and receives the **Daily Digest**, an email with updates for all communities in which they are a member!

...
Create discussions, ask and answer questions.

...
Post announcements for upcoming events.

...
Upload articles, slides, documents and videos.

...
The benefits are endless and get richer as more members engage and join in on the discussions.

Find out more and join in... <http://www.iscb.org/iscb-connect>

2015 Art & Science Winner! Congratulations!



Presenting Author:
Luke Wilson, University of Dundee, United Kingdom

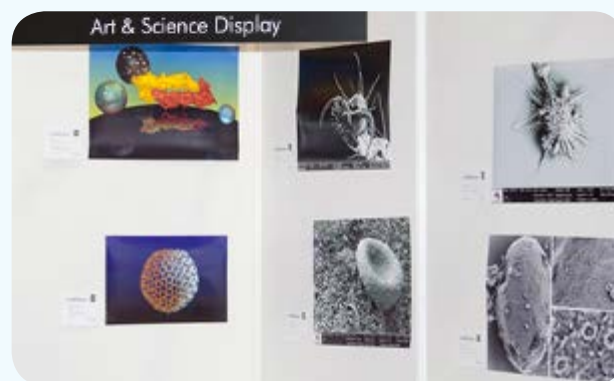
Additional Authors:
Jim Procter, University of Dundee, United Kingdom
Geoff Barton, University of Dundee, United Kingdom
“Multiple sequence alignments were once

performed manually, and even today, we still examine automatically computed alignments to check that we can't do better.” –Jim Procter This is an image of the Jalview Abacus, a sculptural attempt to visually represent the function of the Jalview protein alignment program. The program can be used to find alignments of amino acids in similar proteins. These alignments are then used to find similarities and differences between these proteins.

This object expresses the core process of Jalview in a physical space, and plays on the relationship between high tech and low tech solutions. It is a functioning abacus built by hand from wood and steel. Each row is an extract from different similar proteins (cysteine proteases) and an alignment can be found by lining up the beads of like amino acids in the columns. If it was long enough it could be used to align the entire sequence manually.

Photography: Luke Wilson

Design and Construction: Luke Wilson in collaboration w. Jim Procter and Geoff Barton



Call for Predictors: the Fourth Critical Assessment of Genome Interpretation

The Critical Assessment of Genome Interpretation (CAGI), <https://genomeinterpretation.org> is a community experiment with the primary goals of determining the effectiveness of computational methods for predicting the phenotypic consequences of human genetic variation, and advancing genome interpretation methods. Participants are provided with genotypes and asked to predict the corresponding phenotypes, usually related to genetic disease or cancer.

The fourth CAGI experiment has begun with a prediction season running through December. Seven challenges have been posted at <https://genomeinterpretation.org/content/challenges-4>

and additional challenges will be posted soon <https://genomeinterpretation.org/content/developing-challenges-4>

Challenges are in the following areas:

- Nonsynonymous mutations and targeted assays, including cancer
- Regulatory mutations and gene expression
- Splicing mutations
- Clinical gene panels, likely monogenic
- Research trial exomes, complex disease
- Personal genomes and medical records



More details on the CAGI timeline

<https://genomeinterpretation.org/content/timeline-4>

and challenges <https://genomeinterpretation.org/content/developing-challenges-4>

are available on our web site. You may sign up

for newsletters and follow @CAGInews. All are encouraged to participate.

Contact Steven Brenner, John Moulton, and Roger Hoskins at cagi@genomeinterpretation.org for more information.

GLBIO/CCBC 2016: A new partnership

By Belinda Humes Hanson

The 11th Annual Great Lakes Bioinformatics Conference is joined by a new partner, the Canadian Computational Biology Conference (GLBIO/CCBC 2016), creating a joint venture to be held May 16-19, 2016 in Toronto, Canada. GLBIO/CCBC 2016 will be hosted by the University of Toronto on the Victoria University campus.

An official conference of the International Society for Computational Biology (ISCB), GLBIO/CCBC 2016 provides an interdisciplinary forum for the discussion of research findings and methods for researchers within the Great Lakes Region, which consists of 8 states in the U.S. and 2 Canadian provinces. Additionally, this conference fosters long-term collaborative relationships and networking opportunities within the domain of computational approaches to biology.

The addition of the first Canadian Computational Biology conference will offer Canadians the opportunity to bring

stakeholders together to explore the possibility of an action plan for the formation of a national network. The meeting will serve as a platform upon which like-minded individuals will inform others on the potential benefits that such a meeting would bring to the Bioinformatics/Computational Biology community in Canada.

The combined conference program will include outstanding keynote speakers, oral and poster presentations as well as several tutorials and workshops. From novice to expert, attendees have the opportunity to partake in a variety of workshops, tutorials, presentations, networking events and exhibits.

For more information please visit: <http://www.iscb.org/glbioccbc2016>



**GLBIO/CCBC GREAT LAKES BIOINFORMATICS AND
CANADIAN COMPUTATIONAL BIOLOGY CONFERENCE**

Join Us for Rocky 2015! December 10 - 12, 2015

The Rocky Mountain Bioinformatics Conference offers a unique format for those wishing to present work or for those who want to hear about the latest advances in Computational Biology. We provide opportunities for short "flash" presentations and poster presentations on current projects including significant works-in-progress in all areas that involve the application of advanced computational methods to significant problems in Biology and Medicine.

We especially welcome students and post-docs to present their work to the conference attendees.

This conference is designed to be a small intimate event enabling participants to engage with each other during scheduled social times. Whether skiing together at a world-class ski resort or visiting at a

world-class hotel and spa, we offer plenty of time to network and collaborate on projects.

Affordable Lab & School Retreats

We also offer discounts and special packages to groups from one lab or school who wish to participate in the conference and use the location and time to come together for a team retreat.

Visit: www.iscb.org/rocky2015 for more information.

We hope you make the trip out for the amazing science, the company and the spectacular scenery of the Rocky Mountains!



ISCB Student Awards - Supporting and Spotlighting Students at ISMB

By Christiana N Fogg, Ph.D.

ISCB considers supporting and improving computational biology education as a key part of its mission. Student awards are an important element of ISCB's education endeavor, and several student awards have been developed that recognize excellent research done by trainees and support travel to ISMB. ISCB hopes to continue to expand its student award offerings by working with academic institutions and industry partners to offer more awards and highlight the best work coming from the rising generation of computational biologists.



The Ian Lawson Van Toch Memorial Award for Outstanding Student Paper

The Ian Lawson Van Toch (ILVT) Memorial Award for Outstanding Student Paper sponsored by ILVT Memorial Fund and IBM, and Outstanding Oral Poster Award sponsored by the University of California, Berkeley Center for Computational Biology are two ISCB student awards that recognize outstanding computational biology students and support their travel to ISMB.

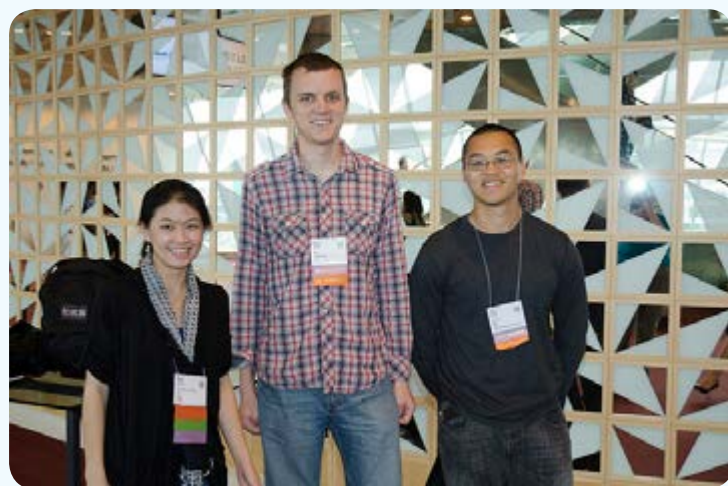
The Ian Lawson Van Toch Memorial Award was established to honor Ian Lawson Van Toch, a 23-year-old student who passed away suddenly in August 2007. Ian was an incoming graduate student planning to study computational biology at the Department of Medical Biophysics, University of Toronto when he discovered his passion for cancer informatics during a summer 2007 internship in Igor Jurisica's lab at the Princess Margaret Cancer Centre. This experience opened Ian's eyes to the powerful impact that computational biology could have on cancer research.

Van Toch's family and Jurisica worked together soon after his passing to establish the Ian Lawson Van Toch cancer

informatics fund to help keep his passion for research alive. The goal of this fund is to give undergraduate and graduate students support to pursue cancer informatics research through awards, summer internships, and a memorial seminar series.

Since 2008, the ISMB program and session chairs have worked together to select a winner of the Ian Lawson Van Toch Memorial Award for Outstanding Student Paper for the most original or thought-provoking paper. This award is presented at the annual ISMB meeting by Van Toch's mother Debra Lawson and is always a touching moment during the final session of the conference.


The fund began with donations from Van Toch's family and friends. Jurisica also approached IBM for support through his long-term collaboration with the company, and the IBM Foundation has been a sponsor since 2008. In addition, Van Toch's friends and family participate in an annual charity bike in Canada started by his father John (<http://www.team-ian.org/>), to raise funds and bring awareness to their cause.



Jurisica said, "My hope is this will become a prestigious award for students in the field. The goal [of the award] is to provide motivation to the up and coming experts in the field."

Outstanding Oral Poster Award

The University of California, Berkeley Center for Computational Biology has revitalized a poster award sponsorship for ISMB through the work of computational biology professor Steven Brenner. This cash award recognizes two students who have presented posters at ISMB that



are outstanding in both scientific content and visual presentation. The ISMB posters committee selects the winners during ISMB and the winners are announced at awards ceremony during the conference closing.

Brenner said, “The mission of the Center for Computational Biology includes education and training of the most outstanding students and postdocs. Therefore, it made sense for us to recognize excellent research from trainees at ISMB. Our hope is that this award will not only provide a

recognition for the work this year, but will help elevate the field and its practitioners.”

These student awards help ISCB and awards sponsors impact the careers of outstanding students in a tangible and lasting way. They also provide a platform to recognize the innovative work done by computational biologists and help recognize a field that is young and becoming more critical to all biomedical research areas.

ISCB addresses Gender-balance for Fellows Election

By Bonnie Berger, Ph.D.

The International Society for Computational Biology (ISCB) understands the importance of promoting diversity in computational research, specifically highlighting the achievements of women researchers. As a society we do focus efforts on a gender-balanced Board of Directors, Elected Officers, keynote speakers at conferences, and awards as much as possible.

We are still a growing science and recognize not all programs have this diverse gender-balance. ISCB addressed this issue by establishing a task force aimed at developing a solution to bring more gender-balanced nominations to our other programs. The ISCB equal opportunity task force was formed and that group developed a proactive solution on how to address the gender in-balance for the ISCB Fellows program.

A newly formed Fellows Pre-Selection Committee has been activated. This committee’s charge is to specifically identify women and ethnically-diverse researchers who have met the criteria of Fellow and nominate those individuals for the position Fellow. In an effort to educate voters on the accomplishments of a nominee, the Fellows Selection Committee will discuss each candidate for Fellow before the first round of voting takes place. Nominees identified by the Pre-Selection Committee will be presented to the Fellows Selection Committee.

The Fellows Program is a nomination-based program. We need strong, well-presented nominations from our members. ISCB is encouraging ISCB members to take the time to nominate outstanding woman researchers

to the program. Nominations are now open; visit www.iscb.org/iscb-fellows-program to nominate today. The deadline is 2 December 2015.

The distinction of ISCB Fellow is based on the following:

- Nomination by an ISCB member must be made using the online nomination form, which requires a 1-2 sentence description of why this person is being proposed, a detailed half-page statement of motivation (500 words maximum) on why this is a good nominee, and a CV (as either an uploaded document or a bullet-point list created by the nominator).
- Nominees must demonstrate excellence in research, service to the computational biology community, education and/or administration.
- Nominees will be assessed on the magnitude and quality of contributions to the field of computational biology.
- Fellow status is automatically bestowed upon the annual Accomplishment by a Sr. Scientist Award winner.
- Selection of new Fellows each year is limited to 1/2 of one percent of the previous year’s membership, including the Sr. Scientist Award winner.

We know that this is a small start to addressing diversity within scientific research but we hope our efforts prove to be successful. Furthermore, as we move forward as a Society, we will continue to address this issue by removing barriers as best we can and doing our due diligence to promote all researchers regardless of race or gender.

ISCB Advances Young Careers You Can Help Young Scientists Build Their Skills!

Campaign and invest in the future of bioinformatics and computational biology! Without the support of travel fellowships, many recipients would not have been able to attend the top conferences in our fields. And, ISCB receives many more deserving applications than we can fund. Your donations help us do more. Your contribution, at any amount, will make a difference for a young scientist! From posters, to highlights and proceedings talks—for many students, ISMB and ECCB are their first opportunities to present at a major scientific conference. Donate to the ISCB Student Travel Fellowship!

Meet the young scientists that benefited from your support!



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Claire Sand, PhD
Queen Mary University of London

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- 3 Software Applications & Services
- 4 Cloud Computing
- 5 Bioinformatics
- 6 Next-Gen Sequencing Informatics
- 7 Clinical Research & Translational Informatics
- 8 Data Visualization & Exploration Tools
- 9 Pharmaceutical R&D Informatics
- 10 Clinical Genomics
- 11 Open Source Innovations
- 12 Cancer Informatics
- 13 Data Security

Plenary Keynote Speakers:



Howard Jacob, Ph.D.

Executive Vice President for Medical Genomics and
Chief Medical Genomics Officer, HudsonAlpha



Heidi L. Rehm, Ph.D., FACMG, Chief Laboratory Director,
Laboratory for Molecular Medicine, Partners Healthcare

Personalized Medicine; Clinical Director, Broad Institute Clinical Research Sequencing Platform;
Associate Professor of Pathology, Brigham & Women's Hospital and Harvard Medical School



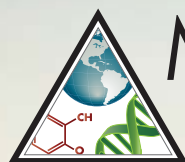
Yaron Turpaz, Ph.D., MBA

Chief Information Officer, Human Longevity, Inc.

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Call for Fellows Nominations

The International Society for Computational Biology introduced the ISCB Fellows Program in 2009 to honor members that have distinguished themselves through outstanding contributions to the fields of computational biology and bioinformatics. During the inaugural year of the program, ISCB conferred the Fellow status on the seven winners-to-date of the ISCB Accomplishment by a

Senior Scientist Award, and recognized these distinguished scientists during the ISMB/ECCB 2009 conference in Stockholm, Sweden. Since then ISCB has sought nominations from our community of members, which are reviewed and voted upon by a selection committee. New Fellows are introduced at each year's ISMB conference.

The distinction of an ISCB Fellow is based on the following:

- Nomination by an ISCB member must be made using the online nomination form, which requires a one-two sentence description of why this person is being proposed, a detailed half-page statement of motivation (500 words maximum) on why this is a good nominee, and a CV (as either an uploaded document or a bullet-point list created by the nominator).
- Nominees must demonstrate excellence in research, service to the computational biology community, education and/or administration.
- Nominees will be assessed on the magnitude and quality of contributions to the field of computational biology.

Nomination Deadline is December 2, 2015!
Nominate a deserving scientist today!



Upcoming ISCB Conferences

13th Annual Rocky Mountain Bioinformatics Conference United States

United States - Colorado - Aspen/ Snowmass

December 10 - 12, 2015 www.iscb.org/rocky2015

13th Annual Rocky Mountain Bioinformatics Conference offers an opportunity to focus on regional development in the computational biosciences. Representing a broad spectrum of universities, industrial enterprises, government laboratories, and medical libraries from around the world, the meeting is a chance to get to know your colleagues near and far, seek collaborative opportunities, and find synergies that can drive our field forward.

GLBIO/CCBC Great Lakes Bioinformatics & Canadian Computational Biology Conference

Canada - University of Toronto

May 16 - 19, 2016

<http://www.iscb.org/glbioccbc2016>

The conference is organized by the Great Lakes Bioinformatics Consortium to provide an interdisciplinary forum for the discussion of research findings and methods.

NGS 2016 Genome Annotation Conference

Barcelona, Spain

April 4 - 6, 2016

<http://www.iscb.org/ngs2016>

NGS 2016 is a dedicated meeting on cutting-edge approaches to the processing and analysis of Genome Annotation methods. It will bring together bioinformatics researchers involved in the development of genome annotation methods, along with biologists interested in the establishment and annotation of new reference genomes.

ISMB 2016

United States - Orlando, Florida

July 8 - 12, 2016

<http://www.iscb.org/ismb2016>

As the world's premier conference on computational biology, ISMB attracts top international scientists and key decision makers in the life sciences — experts in areas such as computer science, molecular biology and medicine, mathematics and statistics — from the world's largest and most prestigious research institutions.

Affiliate Conferences

10th International Conference on Bioinformatics United States

United States - Atlanta, Georgia

November 19 - 21, 2015

In 2015, Georgia Tech and CDC continue the tradition of biennial International Conferences in Bioinformatics, inviting leading scientists to present the latest advances at the forefront of genomics and bioinformatics.

Event Registration: 2015-08-01 through 2015-11-06

ISCB Member Discount: 50 USD

Benelux Bioinformatics Conference 2015

Belgium - Antwerp

December 7 - 8, 2015

The University of Antwerp is proud to welcome you the Benelux Bioinformatics Conference 2015 (BBC 2015). Join us in Antwerp for the tenth anniversary edition of the Benelux Bioinformatics Conference!

Event Registration: 2015-08-01 through 2015-11-30

ISCB Member Discount: 20 EUR

Pacific Symposium on Biocomputing (PSB) 2016

United States - HI - Kohala Coast

January 4 - 8, 2016

The Pacific Symposium on Biocomputing (PSB) 2016 is an international, multidisciplinary conference for the presentation and discussion of current research in the theory and application of computational methods in problems of biological significance.

Event Registration: 2015-08-03 through 2016-01-08

ISCB Member Discount: 50 USD

The 9th International Joint Conference on Biomedical Engineering Systems and Technologies - BIOSTEC 2016

Italy - Rome

February 21 - 23, 2016

Event Registration: 2015-05-01 through 2015-12-16

Bio-IT World Conference & Expo

United States - Boston, MA

April 5-7, 2016

The Bio-IT World Conference & Expo continues to be a vibrant event that unites 3,000+ life sciences, pharmaceutical, clinical, healthcare, and IT professionals from more than 30 countries. Spanning three days, the 2016 meeting includes 13 parallel conference tracks and 16 pre-conference workshops. Full details of the program can be found at

<http://www.bio-itworldexpo.com/>

Affiliate Conferences, cont.

Molecular Medicine Tri-Conference

United States - San Francisco, CA

March 6-11, 2016

Attracting over 3,300 drug discovery and development professionals from over 40 countries in 2015, the Tri-Conference has grown into a diverse event, focusing on Molecular Medicine, specifically on Discovery, Genomics, Diagnostics and Information Technology.

For more information, visit: <http://TriConference.com>

The Fourth Critical Assessment of Genome Interpretation (CAGI 4)

United States - Berkeley, CA

March 25 - 27, 2016

Call for predictors! The Fourth Critical Assessment of Genome Interpretation (CAGI 4) is underway. CAGI is a community experiment with the primary goals of determining the effectiveness of computational methods for predicting the phenotypic consequences of human genetic variation, and advancing genome interpretation methods.

For more Events of Interest, Visit www.iscb.org/conferences



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DNA genotek





For more photos, visit the [ISMB/ECCB 2015 Flickr page](#)!