

ISMB 2009 SIG Proposal

1. Title: 10th Annual Bioinformatics Open Source Conference (BOSC 2009)

2. Topic:

Many open source bioinformatics packages are widely used by the research community across many application areas and form a cornerstone in enabling research in the genomic and post-genomic era. Open source bioinformatics software has facilitated rapid innovation, dissemination, and wide adoption of new computational methods, reusable software components, and standards. As has been repeatedly demonstrated by the quality of presentations at previous BOSC conferences, the work of the open source bioinformatics community represents some of the most cutting edge of Bioinformatics in general. At BOSC 2009 we want to continue this tradition of excellence, presenting the state of the art and making opportunities to contribute available to a wider part of the research community.

The 2009 conference will be the 10th anniversary of BOSC. While BOSC will continue to be a forum for those developing open source bioinformatics software to showcase their new developments, to mark the special occasion we are planning several new features that we believe will generate additional excitement among repeat and prospective new conference attendees.

Specifically, we will hold an overlapping session with the Post-Genomic Special Interest Group (formerly the Post-ENCODE SIG), entitled "Grand Challenges in the Post-Genomic Era," continuing the grand challenge theme from BOSC 2008. The BOSC and Post-Genomic SIG organizers are cooperatively planning their events to allow biologists and software developers being brought together to brainstorm opportunities, needs, and solutions in the context of the bioinformatic challenges presented by next generation sequencing, regulatory genomics, and systems biology. Furthermore, we plan several additional themed sessions with a raised profile by targeting and recruiting specific speakers who are especially suited to give overviews, review the state of the art, or present recent innovations in the respective areas. We anticipate these areas to be design patterns in bioinformatics, multi-core (and other forms of high-performance) computing, and tools and standards for regulatory genomics.

One of the hallmarks of BOSC is the coming together of the open source developer community in one location to meet face-to-face. This creates synergy where participants can work together to create use cases, prototype working code, or run bootcamps for developers from other projects as short, informal, and hands-on tutorials in new software packages and emerging technologies. In short, BOSC is not just a conference for presentations of completed work, but is a dynamic meeting where collaborative work gets done and attendees can learn about new or on-going developments that they can directly apply to their own work. In 2009, we will further strengthen this aspect by adding a new component to the agenda. Specifically, in one of two concurrent sessions we will provide space and the necessary infrastructure to facilitate a short hackathon on creating pipelines and workflows for regulatory genomics analysis using open source libraries. In the other session, speakers selected based on input from the review committee will come prepared to lead tutorials on their software so that meeting attendees can gain hands-on experience with the software packages presented. These concurrent sessions are currently planned to take place on the afternoon of the first day of BOSC.

All presentations except for the keynotes will be submitted as abstracts and subjected to peer-review. The Open Bioinformatics Foundation (O|B|F), which is the sole sponsor of BOSC,

is dedicated to promoting the practice and philosophy of Open Source software development within the biological research community. In order to be considered for acceptance, software systems representing the central topic in a presentation submitted to BOSC must be licensed with a recognized Open Source License, and be freely available for download in source code form.

3. Meeting Details

a. Duration: 2 days

b. Preference for scheduling: We strongly prefer to hold BOSC the two days before the main meeting. This year we would like to hold an overlapping session with the Post-Genomic (formerly Post-ENCODE) SIG on the afternoon of the second day of BOSC. The Post-Genomic SIG is requesting a 1 1/2 day SIG, beginning with the overlapping session with BOSC. The second day of the Post-Genomic SIG will be on the first day of the main ISMB meeting.

c. Expected sessions/topics:

Bio* Updates

Abstracts will be solicited from the representatives of the open source projects sponsored by or affiliated to the O|B|F (see the O|B|F web site at <http://www.open-bio.org/wiki/Projects>). These projects include, BioJava, BioPerl, BioPython, BioRuby, DAS, BioMOBY, EMBOSS, and GMOD.

Open Source Software

Abstracts will be solicited through an open call for presentations on open source bioinformatics software. This session gives developers of new tools or who are new to the field a chance to present their latest work.

Special sessions: (Design Patterns in Bioinformatics, Grand Challenges in the Post-Genomic Era, Regulatory Genomics, Multicore Computing)

Abstracts will be solicited through an open call for presentations. In addition, one or two speakers per session will be recruited to introduce or review the topic, or to present pertinent recent innovations.

Regulatory Genomics Hackathon

We will provide space and the necessary infrastructure to facilitate a short hackathon on creating pipelines and workflows for regulatory genomics analysis using open source libraries.

Tutorials

Selected speakers accepted to give a talk will be asked to lead a tutorial on their software package. The tutorial topics will be listed on the BOSC web site for meeting attendees to come prepared to participate.

Lightning Talks

This section is an opportunity for open source developers to share new tools and tips in a short, focused, format. Talks are 5 minutes long with a few minutes for questions at the end. The BOSC committee will accept proposals for lightning talks up to the morning of the second day of the conference, on a first come-first served basis until no more space is left in the program.

Birds of a Feather

These sessions are small group discussions that may be planned in advance or emerge at the conference. A call for Birds of a Feather session is posted on the BOSC wiki and conference attendees have historically self-organized these sessions. BOSC provides the gathering catalyst and most of the space.

d. Draft Schedule for meeting

Day 1	Day 2
Welcome and Introduction to the O B F (15 minutes)	Welcome to Day 2 (15 minutes)
Keynote 1 (50-60 minute talk)	Keynote 2 (50-60 minute talk)
Coffee	Coffee
Bio* Updates (15-20 minute talks)	Multicore Computing (30 minute opening talk; 15 min. talks)
Open Source Software (15-20 minute talks)	Lightning Talks (5 minute talks)
Lunch Break	Lunch Break
Design Patterns (30 minute opening talk; 2 to 4, 15 min. talks)	Grand Challenges in the Post-Genomic Era (overlapping session with Post-ENCODE SIG)
Coffee	
Regulatory Genomics (30 minute opening talk; 2 to 4, 15 min. talks)	
Lightning Talks (5 minute talks)	
Tutorials, Regulatory Genomics Hackathon	Birds of a Feather Sessions
O B F Board meeting, no-host dinner at local restaurant, anyone interested can participate	

e. Selection of Presentations: We will have 2 invited keynote speakers for each morning of the conference. We will be recruiting one or two speakers to give the opening talk for each of the session topics (Design Patterns, Regulatory Genomics, Multicore Computing, and Grand Challenges). The rest of the speakers will be chosen from among abstracts submitted to an open call for presentations. All abstracts will undergo peer-review. The Lightning Talk sessions will accept submissions for 5 minute talks up to the last day of the conference.

f. Possible Speakers

The committee has a list of possible speakers for the keynotes and for the sessions, but we do not want to put their names in the proposal until we have contacted them and confirmed their participation. In past years, we have been successful in recruiting speakers for our conference.

g. Previous BOSC meetings:

BOSC 2008 (Toronto): 84
BOSC 2007 (Vienna): 97
BOSC 2006 (Fortaleza): 58
BOSC 2005 (Detroit): 93
BOSC 2004 (Glasgow): 136
BOSC 2003 (Brisbane): 96
BOSC 2002 (Edmonton): not available
BOSC 2001 (Copenhagen): not available
BOSC 2000 (San Diego): not available

h. Special Requests:

We ask that BOSC be scheduled in a room that can access the wireless service for the conference to enable the Hackathon/Tutorial/Birds of a Feather participants to share resources. In addition, the success of our overlapping session with the Post-Genomic SIG will depend on having the two SIGs scheduled in the way we request. That is, with BOSC held the two days before the main meeting and the Post-Genomic SIG held as a 1 1/2 day SIG, beginning with the overlapping session on the second afternoon of BOSC.

i. Potential Sources of Sponsorship:

Last year we were sponsored by Helicos and an anonymous donor. We will approach these sponsors again for 2009.

4. Information about organizers

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Qualifications: Dr. Dahlquist has eight years of experience in the field of bioinformatics and has been a member of ISCB since 2002. During her postdoctoral fellowship at the Gladstone Institute for Cardiovascular Disease from 2000-2003, she served as the project manager for the widely-used GenMAPP software (<http://www.genmapp.org>). As an assistant professor in biology at Loyola Marymount University, Dr. Dahlquist is the co-Principal Investigator (with Dr. John David N. Dionisio) of the XMLPipeDB project. XMLPipeDB is a reusable, open source tool chain for building relational databases from XML sources (<http://xmlpipedb.cs.lmu.edu/>). Dr. Dahlquist gave presentations on this project at BOSC 2006 and 2007. Aside from her scientific expertise, Dr. Dahlquist has extensive organizational experience having served as the chair of the Programs Committee of the Palo Alto Chapter of the Association for Women in Science from 2001 to 2003 where she coordinated speakers for monthly meetings of 75-100 people. Recently, Dr. Dahlquist served on the committee that organized the 2007 West Coast Biological Sciences Undergraduate Research Conference and was the sole organizer of the Interdisciplinary Student Research Symposium held at Loyola Marymount University in October 2007. Finally, Dr. Dahlquist was chair of the organizing committee for BOSC 2008.

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Professor Lonnie R. Welch received a Ph.D. in Computer and Information Science from the Ohio State University. Currently, he is the Stuckey Professor of Electrical Engineering and Computer Science at Ohio University, and he is a member of the Graduate Faculties of the Biomedical Engineering Program and of the Molecular and Cellular Biology Program. Dr. Welch performs research in the areas of bioinformatics, functional and regulatory genomics, and high performance computing. His research has been sponsored by the Defense Advanced Research Projects Agency, the Navy, NASA, the National Science Foundation, the Army, and the Ohio Board of Regents. Dr. Welch has more than twenty years of research experience in the area of high performance computing. In his graduate work at Ohio State University, he developed high performance 3-D graphics rendering algorithms, and he invented a parallel virtual machine for object-oriented software. For 15 years, his research focused on middleware and optimization algorithms for high performance computing; this work produced three successive generations of adaptive resource management middleware for high performance real-time systems, and resulted in two patents and more than 150 publications. Currently, Professor Welch directs the Bioinformatics Laboratory at Ohio University, where he performs research in the areas of computational regulatory and functional genomics. Dr. Welch is founder and Co-Editor-in-Chief of The International Journal of Computational Biosciences, and is a member of the editorial boards of The International Journal of Computational Science, and The Journal of Scalable Computing: Practice and Experience. He is the founder and Chair of The Ohio

Bioinformatics Consortium and The Ohio Collaborative Conference on Bioinformatics. He is also the Principal Investigator of the \$9M Bioinformatics Program which is funded by the Ohio Board of Regents and eleven academic institutions from Ohio. Dr. Welch has served on the organizing committees of the Bioinformatics Open Source Conference, the International Symposium on Bioinformatics Research and Applications, and the IEEE International Symposium on Bioinformatics and Bioengineering.