Preface

Message from the Paper Chairs

PAPERS CHAIRS AND EDITORS OF THE
IEEE Symposium on Biological Data Visualization 2012 Proceedings

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These are the proceedings of the Second IEEE Symposium on Biological Data Visualization (BioVis) held on 14-15 October 2012, in conjunction with IEEE VisWeek in Seattle, Washington.

The rapidly expanding field of biology creates enormous challenges for computational visualization techniques for enabling researchers to gain insight from their large and highly complex data sets. The overarching goal of BioVis is to establish a premier international and interdisciplinary event for all aspects of visualization in biology. The symposium brings together researchers from the visualization, bioinformatics, and biology communities with the purpose of educating, inspiring, and engaging visualization researchers in problems in biological data visualization, as well as bioinformatics and biology researchers in state-of-the-art visualization research. The symposium also serves as a platform for researchers in biology and bioinformatics to share pressing visualization challenges and potential solutions in their fields, to initiate interdisciplinary collaborations and to provide an outlet and training ground for young and freshly minted visualization researchers with a keen interest in problems of biology.

Given the goal of bringing together members of the biology, bioinformatics, and visualization communities for discussion, the symposium solicitation was purposefully broad and open-minded to diverse types and lengths of submissions. Authors were encouraged to identify the type and category of their submission. Types of submissions included detailed reports of original research, highlights about relevant previously published work with some additional insight, descriptions of work-in-progress and preliminary results, experience reports, and demonstrations of new systems. Submissions fell in three categories: (i) papers, describing high-quality research that is not necessarily fully completed but offers some new insight; (ii) poster extended abstracts, highlighting relevant work, with the aid of a poster, demo, or video presentation; (iii) contest entries.

PAPERS

These proceedings contain sixteen papers selected from thirty-two submissions (50% acceptance) describing state-of-the-art tools, techniques, and technologies from the field of biological data visualization. The submitted papers were assigned to Program Committee (PC) members based on a match of paper topic and the declared expertise of the committee members. Each paper was reviewed for novelty and contribution by at least three program committee members. For each paper, experts from both the visualization and biology/ bioinformatics communities were involved in the review process. When all reviews were completed, a discussion phase was initiated wherein reviewers of each paper could anonymously express their opinions with an opportunity to adapt their reviews and/or scores. The paper chairs then finalized the decisions on which papers to accept, based on the numerical scores, the detailed reviewer comments, and the discussion board messages.

POSTERS

Poster extended abstracts were reviewed for quality and value to the symposium audience as well as format by at least two program committee members. The poster chairs then finalized the acceptance decisions based on reviewer comments and scores. Of the twenty-three poster submissions, seventeen were accepted (74% acceptance) and are presented in a Poster and Demo Session: five are presented as posters-only and twelve as a poster with a demo and/or video. Authors of four selected poster abstracts will have an opportunity for a longer oral presentation at the symposium. These were selected based on the reviews.

BEST PAPER AND POSTER AWARDS

For selecting the best paper, the papers chairs nominated three papers, based on the review scores and best paper recommendations of the reviewers. A best paper committee (BPC) of three from the Program Committee was assembled, consisting of Jan Aerts, David Duke, and Maitreya Dunham. Each member of the BPC independently ranked the selected papers with a short justification for each. Subsequently, the chairs proposed a combined ranking of the selected papers that, along with the individual justifications, was circulated to the BPC. This resulted in awarding the best paper prize to the highest-ranked paper, with an honorable mention for papers ranked second and third. The best poster will be chosen during the BioVis 2012 symposium by a small panel of Program Committee members as gleaned from the posters and demos on display during the poster session.
**Special Sessions**

The BioVis 2012 Symposium features a Keynote Talk by Christof Koch titled “Project Mindscope” that describes efforts to measure, analyze, and visualize brain function by integrating molecular, structural and connectivity information.

A Challenges Session is organized where a selected range of speakers will cover developments in a broad range of active research topics in modern biological data visualization, from genes to proteins to organisms to populations. The speakers include developers of visualization tools widely used in biology, as well as active users who apply visualization methods to discover new biological knowledge. Inna Dubchak and Valerie Daggett are our featured Challenges Speakers who will describe the challenges faced in visualizing genomic and population data and large macromolecules obtained from molecular dynamics simulations respectively.

A BioVis 2012 Community and Contest Session will provide an opportunity for all interested attendees to discuss the BioVis 2012 meeting and plans for future meetings with members of the Organizing Committee.

**Contest**

The BioVis contest, which began in 2011, will be expanded on and discussed during BioVis 2012 for inclusion in BioVis 2013.

**Proceedings and USB Production**

The proceedings of the conference, including all the accepted papers, are archived in the IEEE Digital Library. A comprehensive set of all materials presented at the conference is provided on the VisWeek USB available to all VisWeek attendees.

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