

ACM Special Interest Group – SIGBio: Bioinformatics, Computational Biology, Biomedical Informatics

Mission Statement

The ACM Special Interest Group on Bioinformatics, Computational Biology, and Biomedical Informatics (SIGBio) bridges computer science, mathematics, statistics with biology and biomedicine. The mission of the ACM SIGBio is to improve our ability to develop advanced research, training, and outreach in Bioinformatics, Computational Biology, and Biomedical Informatics by stimulating interactions among researchers, educators and practitioners from related multi-disciplinary fields.

Motivation

Over the past ten years, we have witnessed a revolution in biological and biomedical research. The increasingly wide use of digital and high-throughput technology has enabled biological and biomedical researchers to generate massive amounts of data from laboratory experiments, questionnaire-derived data, health records and a wide array of biomarkers. In addition, the availability of public genomic databases and the associated analysis on comprehending sequences and annotations, protein-protein interaction data, protein structures and domain information have increased the need for computational tools and methodologies directed towards data analysis, data integration, and data extraction.

It is generally agreed that the ability to concurrently manage and analyze these datasets will lead to a much deeper understanding of the biological mechanisms underlying variety of human diseases. Therefore, research in bioinformatics, computational biology, and biomedical informatics is becoming indispensable to life science researchers.

The ACM SIGBio is expected to help develop the new culture of researchers with computer science, computer engineering and applied computing background speaking language of biology, medicine, biophysical sciences and life sciences. It will help introduce a new type of bioinformaticians, computational biologists and biomedical informaticians. This large new community needs forums, conferences, and workshops, for exchange of ideas; it needs affiliated research journals; it needs its own organization to promote computation driven research in bioinformatics, computational biology, and biomedical informatics.

SIGBio events

The currently approved 2010 ACM International Conference on Bioinformatics and Computational Biology (ACM-BCB 2010) is the first ACM conference in the areas of bioinformatics, computational biology, and biomedical informatics. The conference will be held at Niagara Falls, New York on August 2-4, 2010. In addition, four workshops, including Protein-protein Interaction Data: Management, Querying and Analysis, Graph Theoretic Approaches for Biological Network Analysis, Gene Networks and Pathway generation and Analysis, and Immune Informatics and Computational Vaccinology, will be organized jointly with the conference. The anticipated number of participants is 150-200. An annual community meeting will be held during the ACM-BCB conference. A call-for-paper is attached to this proposal. All detailed information can be found at the ACM-BCB conference website:

<http://www.cse.buffalo.edu/ACM-BCB2010>

SIGBio Organization

All the people listed below except the members of the advisory board have agreed to serve in the indicated capacities.

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Tentative, proposed list of board members, subject to change (not confirmed yet):

Peter McCartney (Program manager, NSF)
Sylvia Spengler (Program manager, NSF)
Peter Good (Program manager, NIH)
Susan K. Gregurick (Program manager, DOE)
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Community and Member Benefits Provided by SIGBio

SIGBio will sponsor the annual conference of ACM-BCB as well as other new coming conferences related to Bioinformatics, Computational Biology, and Biomedical Informatics, and will provide the following benefits to the community:

- SIGBio will work with the SGB Awards Committee Representative to create a set of conference and contribution awards to recognize contributions to the field and community conference.

- SIGBio will promote graduate students' research involvement in bioinformatics, computational biology, and biomedical informatics by holding Ph.D. Colloquium and Poster Session at the annual ACM-BCB conference
- SIGBio will sponsor a variety of workshops and conferences related to bioinformatics, computational biology, and biomedical informatics.
- SIGBio will create a community mailing list for announcements about events of interest, Calls for Papers, and Calls for Participation.

SIGBio will provide the following benefits to its members:

- SIGBio members will be granted the SIGBio-members-only access to ACM SIGBio Knowledge Repository.
- SIGBio members will receive free proceedings (CD) of the annual ACM-BCB conference and other sponsored conferences.
- SIGBio members will be granted full on-line access to the proceedings of the SIGBio sponsored / supported conferences in the ACM Digital Library.
- SIGBio members will pay lower registration fees than non-members for SIGBio sponsored workshops and conferences.

Relationship with Other SIGs

The overlaps with the existing SIGs are minimal. Recent research activities in some existing SIGs have started to be involved in the applications of biological and biomedical data. For example, in SIGIR, there have been some new research activities on biological literature indexing and search; in SIGKDD, there have been some new research activities on mining biological patterns; in SIGMOD, there have been some new research activities on biological data management. However, Bioinformatics, Computational Biology, and Biomedical Informatics have not been the main focus of any of the existing groups.

There is another new special interest group, SIG on Health Informatics, is being proposed parallel to SIGBio. The leaders of the two proposed groups have discussed the overlaps and decided to form separate special interest groups. SIG on Health Informatics will focus on Health related activities, such as managing electronic medical records, diagnosing diseases from symptoms, and preventing diseases based on family history information, while SIGBio -- bioinformatics, computational biology, and biomedical informatics focuses on the integrated activities between computational researchers and biological and biomedical researchers at the molecular level. The two groups will organize different conferences with distinct communities, societies, conferences, and journals.