

Large Data Sets in Medical Informatics

IMA Annual Thematic Program Workshop
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Organizers:

Nevenka Dimitrova (Philips Research)

Clem Karl (Electrical and Computer Engineering, Boston University)

Jean-Christophe Olivo-Marin (Quantitative Image Analysis Unit, Institut Pasteur)

Ahmed H. Tewfik (Electrical and Computer Engineering, University of Texas at Austin)

Description:

Biomedical informatics is currently limited by two critical challenges: the need to process large data sets to make inferences and the small size of replicates that limits the confidence in these inferences. These factors impact several aspects of biomedical informatics, including its development and its applications, ranging from modern CT and MRI and microscopy imaging to neurological investigations and genomics.

This workshop will bring together mathematicians, statisticians, engineers, and scientists working on particular aspects of biomedical informatics or related areas. A careful look at the literature in any of the subfields of biomedical informatics reveals specialized approaches and philosophies combined with a lack of knowledge of other potentially useful methodologies that have been developed in other subfields. Results and methodologies discovered in pertinent areas of mathematics and statistics remain largely unknown in biomedical informatics. Conversely, researchers in real analysis, differential equations, algebraic geometry, and statistics are often unaware of the characteristics of the challenges in biomedical informatics that limit the applicability of generic approaches.

Speakers:

Shipra Agrawal (BioCOS Life Sciences Private Limited)

Elsa Angelini (Telecom ParisTech)

Nidhal Bouaynaya (University of Arkansas)

Charles Bouman (Purdue University)

Yi-Ping Phoebe Chen (La Trobe University)

Nevenka Dimitrova (Philips Research Laboratory)

Peter Doerschuk (Cornell University)

Edward Dougherty (Texas A & M University)

Alfred Hero (University of Michigan)

Clem Karl (Boston University)

Michael Liebling (University of California, Santa Barbara)

Robert Nowak (University of Wisconsin-Madison)

Jean-Christophe Olivo-Marin (Institut Pasteur)

Jens Rittscher (General Electric)

Badri Roysam (University of Houston)

Guillermo Sapiro (University of Minnesota)

Dan Schonfeld (University of Illinois)

Allen Tannenbaum (Georgia Institute of Technology)

Ahmed Tewfik (University of Texas at Austin)

Jean-Baptiste Thibault (GE Healthcare)

Rebecca Willett (Duke University)

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