Chair & Committee

Chair
Tony Jebara, Computer Science

Committee
Tian Zheng, Statistics (co-chair)
Kenneth Ross, Computer Science
Nicholas Ruozzi, Computer Science
Rocco A. Servedio, Computer Science
Jay Sethuraman, Industrial Engineering and Operations Research
Venkat Venkatasubramanian, Chemical Engineering

Center Summary
To support and amplify the study of five specific markets – Cybersecurity, Financial Analytics, Health Analytics, New Media and Smart Cities, which all lie at the center of New York City’s innovation economy, the Institute also will conduct core research on problems that cut across the data sciences and engineering. The research will focus on formal and mathematical models for data processing, as well as on issues concerning the engineering of large-scale data processing systems.

Affiliated Departments
- Computer Science
- Statistics
- Industrial Engineering and Operations Research
- Chemical Engineering
- Electrical Engineering
- Business/Marketing
- Applied Physics and Applied Mathematics
- Biostatistics
- Mechanical Engineering
- Center for International Earth Science Information Network
- Business
- Biology
- Biomedical Informatics
AFFILIATED LABS

Columbia Machine Learning Lab, Database Research Lab, Complex Resilient Intelligent Systems

RESEARCH EXPERTISE

Committee
Tony Jebara, Chair (CS) Machine learning
Tian Zheng, co-Chair (Stat.) Statistical learning, applied statistics
Kenneth Ross (CS) Database systems
Nicholas Ruozzi, (CS) Machine learning
Rocco A. Servedio, (CS) computational learning theory
Jay Sethuraman (IEOR) scheduling, discrete optimization
Venkat Venkatasubramanian (Chem. Eng.) risk analysis and management; cyberinfrastructure and “big data”; complex adaptive teleological systems.

Affiliated Members
Peter Allen (CS) Robotic grasping, 3-D vision and modeling
Dimtris Anastassiou (EE) Computational biology
Asim Ansari (Business) Internet Recommendation Systems, Digital Customization, Social Network modeling, and Hierarchical Bayesian methods for Customer Data
Eva Ascarza (Business) Customer analytics and pricing in the context of subscription businesses
Guillaume Bal (APAM) Partial differential equations; Theory of inverse problems
Emanuel Ben-David (Stat.) Statistical learning, graphical model, social networks and causal models
David Blei (CS/Stat) Probabilistic topic models, Bayesian nonparametric methods, and approximate posterior inference
DuBois Bowman (Biostat.) Methods for brain imaging data (fMRI, diffusion tensor imaging, and PET)
Michael P. Burke (ME) Multi-scale modeling, data sciences, and automation in advanced combustion and energy applications
Luca Carloni (CS) Multi-core system-on-chip platforms
Shih-Fu Chang (EE/CS) Theories, algorithms, and systems for multimedia analysis and retrieval
Robert S. Chen (Center for International Earth Science Information Network) cyberinfrastructure development, disaster risk assessment, and climate adaptation
Maria Chudnovskiy (IEOR) Graph theory; combinatorial optimization
Michael Collins (CS) Machine learning, machine translation, dialog systems, and speech recognition
John Patrick Cunningham (Stat.) Statistical learning, Neuroscience
Qiang Du (APAM) numerical analysis, mathematical modeling and scientific computation
Haimoni Dutta (CCLS) Scalable machine learning algorithms and distributed optimization
Yang Feng, (Stat.) variable selection and classification, nonpara. and semi-para. methods, bioinformatics and network models
Andrew Gelman (Stat. & Poli. Sci.) Bayesian Statistics, Computational social sciences, sample surveys, experimental designs, computing and visualization
Donald Goldfarb (IEOR) Linear and nonlinear programming; Network flows; Large sparse systems;
Jeff Goldsmith (Biostat.) neuroimaging, physical activity monitoring using accelerometers, motion kinematics and motor learning, and urban environments
Luis Gravano (CS) Databases, Information Retrieval, Web Search
Lauren Hannah (Stat.) machine learning, Bayesian statistics, and energy applications
Daniel Hsu (CS) Algorithmic statistics and machine learning

Soulaymiane Kachani (IEOR) Pricing, revenue management, logistics, supply chain management, algorithmic trading and transportation analysis
Yash Kanoria (Business) Matching markets and market design
David Keyes (APAM) Algorithmic interface between parallel computing and the numerical analysis of partial differential equations
James Kitts (Business) Computational social science
Upmanu Lall (Earth & Envir. Eng.) Global water systems and climate variability and change.
Aurel A. Lazar (EE) Neuroscience
Donald R. Lemon (Business) GPU computing, big-data analytics, and extreme scale databases
David Madigan (Stat.) Bayesian statistics, text mining, MC methods, pharmacovigilance and probabilistic graphical models
Arian Maleki (Stat.) Compressed sensing
Tal Malkin (CS) Cryptography, security, complexity theory
Nicholas Maxemchuk (EE) Communications & IT
Rahul Mazumder (Stat.) Statistical learning, applied statistics, large scale optimization, mathematical programming
Kathleen McKeown (CS) Natural language processing
Christoph Meinrenken (Lenfest Center for Sustainable Energy) computer modeling for low carbon energy systems
Ciamac Moallemi (Business) Optimization and control of large-scale stochastic systems
Steven M. Nowick (CS) Design methods and CAD tools for synthesis and optimization of asynchronous and mixed-timing digital systems
Peter Orbanz (Stat.) Bayesian nonparametrics, statistics of discrete objects and structures
John Paisley (EE) Bayesian methods for big data problems
Liam Paninski (EE) Neuroscience and machine learning
Rebecca J. Passonneau (CCLS) Natural Language Processing
Dana Pe'er (Bio. Sci.) Genetic regulatory network
Itsik Pe'er (CS) Computational methods in human genetics
Dan Rubenstein (CS) network technologies, applications, and performance analysis
Paul Sajda (Biomed. Eng., Radiology) Neural Engineering
Ansal Salleb-Aouissi (CCLS) Machine Learning and Data Mining
Clifford Stein (IEOR) Combinatorial optimization, scheduling, and network algorithms
Victoria Stodden (Stat.) Reproducibility in computational science
Nicholas Tattonetti (Biomed. Infor.) Translational bioinformatics and machine learning
Vladimir Vapnik (CS) Machine learning theory
Chee Wei Wong (ME) Control of light in nanostructures
Chris Wiggins (APAM) Machine learning
John Wright (EE) High-dimensional data analysis
Mihalis Yannakakis (CS) Algorithms, complexity, optimization, game theory, databases, testing and verification
Junfeng Yang (CS) Reliable and secure software systems
Rafael Yuste (Bio. Sci.) Neuroscience
Chaolin Zhang (C2B2) Systems Biology, RNA regulatory networks
Jose Zubizarreta (Business) Causal Inference
Gil Zussman (EE) wireless networks

CURRENT COLLABORATORS

Corporate: Google, Yahoo, Microsoft, IBM
Government: NSF, NIH, DHS, ONR, DARPA, IARPA
Foundations: Sloan Foundation
Journal of Machine Learning Research