Youth in High-Dimensions: Machine Learning, High-Dimensional Statistics and Inference for the New Generation

29 June - 3 July 2020
An ICTP Virtual Meeting
Trieste, Italy

Further information:
http://indico.ictp.it/event/9409/
smr3517@ictp.it

The aim of the conference is to give young researchers from academia and industry the opportunity to gather and present their results related to high-dimensional statistical problems, as arising in machine learning, inference or statistical physics. The focus is on the analytical and rigorous techniques that allow to study i) the information theoretic limits and phase transitions phenomena; ii) the algorithmic limits; and iii) the rough energy landscapes arising in these problems.

Directors:

F. KRZAKALA, ENS Paris, France
J. BARBIER, ICTP

Local Organizer:

M. MARSILI, ICTP

Speakers:

Q. BERTHET, Google Paris, France
E. BOIX, MIT, USA
M. BRENNAN, MIT, USA
L. BUDZYNSKI, ENS Paris, France
Y. DESHPANDE, MIT, USA
S. D'ASCOLI, ENS Paris, France
A. EL-ALAOUI, Stanford, USA
M. GABRIÉ, NYU, USA
S. GOLDT, ENS Paris, France
A. JAGANNATH, Waterloo University, Canada
A. LOKHOV, Los Alamos National Laboratory, USA
B. LOUREIRO, ENS Paris, France
C. LUCIBELLO, Bocconi University, Italy
C. LUNEAU, EPFL, Switzerland
A. MAILLARD, ENS Paris, France
S. MEI, Stanford, USA
E. MINGIONE, EPFL, Switzerland
M. MONDELLI, IST, Austria
N. MUELLER, Frankfurt University, Germany
D. NAGARAJ, MIT, USA
V. ROS, ENS Paris, France
M. SAENZ, ICTP, Italy
L. SAGLIETTI, ENS Paris, France
S. SEN, Harvard, USA
E. SUBAG, NYU, USA
P. SUR, Harvard, USA
D. TANTARI, Bologna University, Italy
P. URBANI, IPHT Saclay, France

Description:

Typical problems in high-dimensions include the detection and estimation of noisy signals (compressed sensing, PCA and tensor decomposition etc), the analysis of (deep) neural-networks and their learning and generalization dynamics, the detection of communities in large networks, or disordered spin systems. While these problems may seem of different natures, they actually share many similarities in their common phenomenology and the tools used to analyze them. The core of the field is made of a very active, diverse and quickly expanding community of physicists, computer scientists, mathematicians, information theorists and engineers, with the common desire to tackle increasingly challenging problems at the forefront of data science. This conference aims at re-inforcing the links among this interdisciplinary community, and in particular of its youngest theory-oriented members, and to bring forward the latest development happening in the high-dimensional world.

Topics:

- High-dimensional probability and statistics
- Theoretical machine learning
- Theoretical computer science
- High-dimensional inference and signal processing
- Information theory
- Statistical physics of disordered systems

How to apply:

Online application:
http://indico.ictp.it/event/9409/

Female scientists are encouraged to apply.

Deadline:

27 June 2020

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