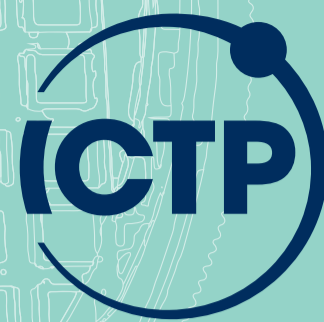


Huddle on Learning and Inference from Structured Data: Universality, Correlations and Beyond



10 - 21 July 2023
An ICTP Meeting
Trieste, Italy

Further information:
<http://indico.ictp.it/event/10189/>
smr3855@ictp.it

In the continuation of the workshop, the huddle will focus on the modelisation and statistical analysis of large structured data sets as appearing in modern signal processing and machine learning. Recurrent questions will be: what are “good” models of high-dimensional data which are realistic enough while remaining analytically tractable, and what are their universality properties?

Many modern problems (e.g. compressed sensing, community detection, PCA and tensor decomposition) seek to infer some latent signal from high-dimensional noisy data. A theoretical analysis is often challenging due to the subtle correlations and structured dependencies among the observed features. Remarkably, many of these systems exhibit universal statistics ie., similar properties as a surrogate random system. There has been substantial recent progress at the intersection of statistical physics, statistics, probability and machine learning in rigorously establishing these empirical observations, and these properties have been critically exploited for statistical learning.

This huddle will focus on these recent interdisciplinary investigations, with a view towards discovering new connections among the diverse approaches to these problems of common interest.

Topics:

- High-dimensional statistics and inference
- Statistical learning
- Models of structured data
- Universality
- Statistical mechanics

How to apply:

Participation in this huddle is by invitation only, and no general applications can be accepted.

Registration:

There is no registration fee.

Directors:

M. SÁENZ, Universidad de La República Uruguay,
Uruguay
S. SEN, Harvard University, USA
P. SUR, Harvard University, USA

Local Organiser:

J. BARBIER, ICTP, Italy



The Abdus Salam
International Centre
for Theoretical Physics
www.ictp.it
Trieste, Italy

