



From
10
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2022
to
14
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2022

09h00
-
18h00

2022-T3 GEOMETRY & STATISTICS IN DATA SCIENCES

Geometry, Topology and Statistics in Data Sciences

Institut Henri Poincaré
Amphithéâtre Hermite
11 rue Pierre et Marie Curie 75005 Paris

Geometry, Topology and Statistics in Data Sciences

10-14 October - IHP, Paris

On one hand, modern data science makes use of Topological Data Analysis in a preliminary step to obtain structural information before processing supervised or unsupervised methods. On the other hand, when a priori knowledge of a Riemannian manifold containing the data is available, shape analysis proposes to adapt mathematical statistics tools to infer geometric and statistical properties.

Invited Speakers

URL of the page: <https://www.ihp.fr/en/events/geometry-topology-and-statistics-data-sciences>

- Dominique Attali (GIPSA-lab) - *Reconstructing manifolds by weighted ℓ_1 -norm minimization*
- Martin Bauer (Florida State University) - *Elastic shape analysis of surfaces*
- Omer Bobrowski (Technion Israel Institute of Technology) - *Universality in random persistence diagrams*
- Frédéric Barbaresco (Thales) - *Symplectic foliation model of information geometry for statistics and learning on Lie groups*
- Claire Bréchet (University Rennes 2) - *Approximating data with a union of ellipsoids and clustering*
- Nicolas Charon (Johns Hopkins University) - *Registration of shape graphs with partial matching constraints*
- Herbert Edelsbrunner (Institute of Science and Technology Austria) - *Chromatic Delaunay mosaics for chromatic point data*
- Barbara Gris (Sorbonne University) - *Defining data-driven deformation models*
- Heather Harrington (Oxford University) - *TBA*
- Kathryn Hess (EPFL) - *Morse-theoretic signal compression and reconstruction*
- Irène Kaltenmark (Université de Paris) - *Curves and surfaces. Partial matching in the space of varifolds.*
- Eric Klassen (Florida State University) - *The square root normal field and unbalanced optimal transport*
- Johannes Krebs (KU Eichstaett) - *On the law of the iterated logarithm and Bahadur representation in stochastic geometry*
- Nina Miolane (UC Santa Barbara) - *Geomstats: a Python package for Geometric Machine Learning*
- Steve Oudot (Inria Paris Saclay) - *Optimization in topological data analysis*
- Victor Patrangenaru (Florida State University) - *Geometry, topology and statistics on object spaces*
- Stephen Preston (City University of New York) - *Isometric immersions and the waving of flags*
- Stefan Horst Sommer (University of Copenhagen) - *Diffusions means in geometric statistics*
- Katharine Turner (Australian National University) - *TBA*
- Yusu Wang (UC San Diego) - *Weisfeiler-Lehman meets Gromov-Wasserstein*
- Laurent Younes (Johns Hopkins University) - *Stochastic gradient descent for large-scale LDDMM*



INSTITUT HENRI POINCARÉ

Sorbonne Université / CNRS
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TIMETABLE

The institute:

- Monday to Friday from 8:30am to 6pm,
- closed on public holidays.

The museum - Maison Poincaré :

- Monday, Tuesday, Thursday and Friday from 9:30am to 5:30pm,
- Saturday from 10am to 6pm,
- closed on Wednesday and Sunday.