Thematic program of the Centre Émile Borel

«The Mathematics of Imaging»

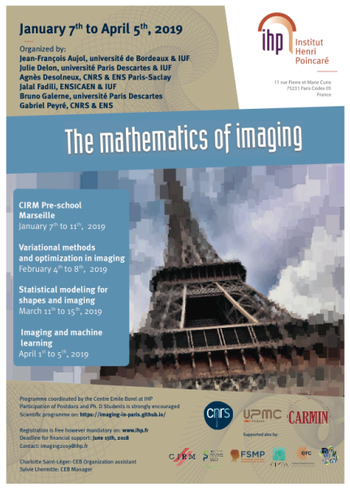
Paris, January 7th – April 5th, 2019

Conference «Statistical Modeling for Shapes and Imaging»

Paris, March 11th – 15th, 2019

Amphitheater Hermite

All lectures will be videotaped



Organizers: Jean-François Aujol (Université de Bordeaux & IUF), **Julie Delon** (Université Paris Descartes & IUF), **Agnès Desolneux** (CNRS and ENS Paris-Saclay), **Jalal Fadili** (ENSICAEN & IUF), **Bruno Galerne** (Université d'Orléans), **Gabriel Peyré** (CNRS and ENS)

Invited Speakers:

Stéphanie Allassonnière (Univ. Paris Descartes)
Pablo Arias (ENS Paris-Saclay)
Hermine Biermé (Univ. Poitiers)
Jérémie Bigot (Univ. Bordeaux)
Marie-Paule Cani (Polytechnique)
Jean-François Cardoso (CNRS, IAP)
Pierre Chainais (Ecole Centrale Lille)
Marianne Clausel (Univ. de Nancy)
Xavier Descombes (INRIA, Sophia Antipolis)
Remco Duits (Eindhoven Univ. of Technology)
Gersende Fort (CNRS, Univ. Toulouse)
Joan Glaunès (Univ. Paris Descartes)
Alfred Hero (Univ. of Michigan)
Irène Kaltenmark (Univ. Bordeaux)
Charles Kervrann (INRIA Rennes)
Ron Kimmel (Technion)
Arthur Leclaire (Univ. Bordeaux)
Sylvain Lefèbvre (INRIA Nancy)
Michael Lindenbaum (Technion)
Cécile Louchet (Univ. Orléans)
Pooran Memari (Polytechnique)
Sylvain Paris (Adobe/MIT)
Marcelo Pereyra (Heriot-Watt Univ.)
Julien Rabin (Univ. de Caen)
Anuj Srivastava (Florida state Univ.)
Alain Trouvé (ENS Paris-Saclay)
Michael Unser (EPFL)
François-Xavier Vialard (Univ. Paris-Est)

PROGRAM

Monday March 11th

01.30 pm – 02.00 pm	**Registration**	
02.00 pm – 02.45 pm	**Sylvain Paris**	Photography Made Easy.
02.45 pm – 03.30 pm	**Sylvain Lefèbvre**	Synthesizing stochastic microstructures for additive manufacturing.
03.30 pm – 04.00 pm	Coffee break	IHP ground floor
04.00 pm – 04.45 pm	**Pooran Memari**	Statistical representation for geometric modeling.
04.45 pm – 05.30 pm	**Julien Rabin**	Detecting Overfitting of Deep Generative Networks via Latent Recovery.

Tuesday March 12th

09.30 am – 10.15 am	**Ron Kimmel**	Interaction between invariant structures for shape analysis.
10.15 am – 10.45 am	Coffee break	IHP ground floor
10.45 am – 11.30 am	**Michael Lindenbaum**	3D Point Cloud Classification, Segmentation and Normal estimation, using 3D Modified Fisher Vector Representation and Convolutional Neural Networks.
11.30 am – 12.15 pm	**Cécile Louchet**	Total variation denoising with iterated conditional expectation.
12.15 pm – 02.00 pm	**Lunch break**	
02.00 pm – 02.45 pm	**Michael Unser**	Hybrid sparse stochastic processes and the resolution of linear inverse problems.
02.45 pm – 03.30 pm	**Hermine Biermé**	Lipschitz-Killing curvatures of excursion sets for 2D random fields.
03.30 pm – 04.00 pm	Coffee break	IHP ground floor
04.00 pm – 04.45 pm	**Pierre Chainais**	Efficient sampling through variable splitting-inspired bayesian hierarchical models.
04.45 pm – 05.30 pm	**Jérémie Bigot**	Statistical aspects of stochastic algorithms for entropic optimal transportation between probability measures.

Wednesday March 13th

09.30 am – 10.15 am	**Gersende Fort**	Stochastic Approximation-based algorithms, when the Monte Carlo bias does not vanish.
10.15 am – 10.45 am	Coffee break	IHP ground floor
10.45 am – 11.30 am	**Remco Duits**	PDEs on the Homogeneous Space of Positions and Orientations.
11.30 am – 12.15 pm	**Stéphanie Allassonnière**	Mixed-effect model for the spatiotemporal analysis of longitudinal manifold-valued data.
12.15 pm – 02.00 pm	**Lunch break**	
02.00 pm – 02.45 pm	**Anuj Srivastava**	Functional Data Analysis Under Shape Constraints.
02.45 pm – 03.30 pm	**Charles Kervrann**	A fast statistical colocalization method for 3D live cell imaging and super-resolution microscopy.
03.30 pm – 04.15 pm	**Xavier Descombes**	Multiple objects detection in biological images using a Marked Point Process Framework.

04.15 pm – 05.00 pm	Coffee break	IHP ground floor
05.00 pm – 06.00 pm	**Marie-Paule Cani**	**Conférence Grand public en français : «Création des mondes virtuels : Objets auto-similaires et distributions d'éléments».**

Thursday March 14th

09.30 am – 10.15 am	**Arthur Leclaire**	Maximum Entropy Models for Texture Synthesis.
10.15 am – 10.45 am	Coffee break	IHP ground floor
10.45 am – 11.30 am	**Irène Kaltenmark**	From currents to oriented varifolds for data fidelity metrics; growth models for computational anatomy.
11.30 am – 12.15 pm	**Joan Glaunès**	Kernel norms on normal cycles and the KeOps library for linear memory reductions over datasets.
12.15 pm – 02.00 pm	**Lunch break**	
02.00 pm – 02.45 pm	**Marcelo Pereyra**	Bayesian inference and convex geometry: theory, methods, and algorithms.
02.45 pm – 03.30 pm	**Marianne Clausel**	Gaussian random fields and anisotropy.
03.30 pm – 04.00 pm	Coffee break	IHP ground floor
04.00 pm – 04.45 pm	**Pablo Arias**	Video denoising via Bayesian modelling of patches.
04.45 pm – 05.30 pm	**François-Xavier Vialard**	Metric estimation for diffeomorphic image registration.
06.30 pm – 10.00 pm	**Wine & Cheese**	**IHP gound floor**

Friday March 15th

09.30 am – 10.15 am	**Jean-François Cardoso**	The inconvenience of a single Universe.
10.15 am – 10.45 am	Coffee break	IHP ground floor
10.45 am – 11.30 am	**Alfred Hero**	TeraLasso for sparse time-varying image modeling.
11.30 am – 12.15 pm	**Alain Trouvé**	Modular large deformation and shape aware metrics in shape analysis: How to make things simple (and meaningful)?

12. 15 pm: End of the Conference

More information of the trimester «The Mathematics of Imaging»: **https://imaging-in-paris.github.io/semester2019/workshop2**

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