Computational Microscopy

Friday September 23, 2022

2:00–3:30 **Marc Aurèle Gilles** (Princeton University)
Heterogeneity analysis in cryo-EM (part of working group seminar: Inverse Problems)

Tuesday September 27, 2022

2:00–3:00 **Nicholas Marshall** (Princeton University)
Fast expansion into harmonics on the disk: a steerable basis with fast radial convolutions

3:00–3:30 *Tea Time*

Thursday September 29, 2022

2:00–3:00 **Michael Wakin** (Colorado School of Mines)
Stable embeddings of manifold models: Dimensionality reduction for signals and systems

3:00–3:30 *Tea Time*

Tuesday October 4, 2022

11:00–12:00 **Siting Liu** (University of California, Los Angeles (UCLA))
An Inverse Problem in Mean Field Games from Partial Boundary Measurement

2:00–3:00 **Christian Doberstein** (University of South Carolina)
Simulation of scanning transmission electron microscopy (STEM) images

3:00–3:30 *Tea Time*

Thursday October 6, 2022

2:30–3:00 **Tingwei Meng** (University of California, Los Angeles (UCLA))
On Hamilton-Jacobi PDEs and image denoising models with certain non-additive noise

3:00–3:30 *Tea Time*

Friday October 7, 2022

11:00–12:00 **Jérôme Gilles** (San Diego State University)
Segmentation of scanning tunneling microscopy images

Tuesday October 18, 2022

2:00–3:00 **Ruiming Cao** (University of California, Berkeley (UC Berkeley))
imaging sharper and faster with coded illumination microscopy

3:00–3:30 *Tea Time*

Thursday October 20, 2022

2:15–3:00 **Zalan Fabian** (University of Southern California (USC))
Overview of Diffusion Models in Deep Learning and Applications to Inverse Problems

3:00–3:30 *Tea Time*

3:30–4:00 **Minh Pham** (University of California, Los Angeles (UCLA))
Overview of problems and algorithms in Coherent Diffractive Imaging

Friday October 28, 2022

1:30–2:30 **Peter Binev** (University of South Carolina)
Learning from Approximation Point of View

Tuesday November 1, 2022

2:30–3:00 **Eric Verbeke** (Princeton University)
Motivation for Workshop III – Cryo-Electron Microscopy and Beyond

3:00–3:30 *Tea Time*

3:30–4:30 **Elisa Negrini** (Institute for Pure and Applied Mathematics)
A Neural Network Approach to System Identification

Thursday November 3, 2022

2:30–3:00 **Bogdan Toader** (Yale University)
Ab initio reconstruction of CryoEM volumes using Markov Chain Monte-Carlo sampling

3:00–3:30 *Tea Time*

3:30–4:00 **Josiah Park** (Texas A&M University - College Station)
Interaction energy minimization, symmetry, and optimization methods

Tuesday November 8, 2022

2:00–2:30 **Daniel Jacobs** (University of California, Los Angeles (UCLA))
Electronic Structure Prediction in Molecular Dynamics Simulations of Biomaterials

2:30–3:00 **Willem Diepeveen** (University of Cambridge)
Revisiting orientation estimation in Cryo-EM volume refinement

3:00–3:30 *Tea Time*

3:30–4:30 **Ivo Ihrke** (University of Siegen)
(Un?)likely connections: transport, scattering and inverse problems in computer graphics, computer vision, optics and electron microscopy with a pinch of signal processing for good measure

Wednesday November 9, 2022

3:30–4:00 **Philip Cho** (Air Force Research Laboratory)
Detecting Point Defects in TEM Images using Self-Supervised CNNs

Thursday November 10, 2022

1:30–2:00 *Tea Time*

2:00–3:00 **Yuan Yao** (Yale University)
Robust Statistical Learning and Generative Adversarial Networks

3:00–3:15 *Break*

3:15–3:45 **Jason Hu** (University of California, Los Angeles (UCLA))
ISONET AND QUANTIFYING THE RELIABILITY OF RECOVERED INFORMATION

Tuesday November 22, 2022

3:00–3:30 *Tea Time*

3:30–4:30 **Damek Davis** (Cornell University)
Leveraging partial smoothness for faster convergence in nonsmooth optimization

Thursday November 24, 2022

2:30–3:30 **Peter Binev** (University of South Carolina)
Colloquium Talk at University of Alberta (PIMS/IPAM collaboration) | *Learning a Function and Optimal Recovery*

Tuesday December 6, 2022

2:30–3:00 **Ziyang Hu** (University of Sheffield)
Multi-slice Near-field Ptychography

3:00–3:30 *Tea Time*

3:30–4:30 **Nicolas Pegard** (UNC - Chapel Hill)
I want to go fast ! Deep-learning accelerated Computer-Generated Holography

Thursday December 8, 2022

2:00–3:00 **Béatrice Lessard-Hamel** (Laval University)
Engineering challenges in the development of an in situ microorganism imaging system in sea ice.

3:00–3:30 *Tea Time*

3:30–4:00 **Raissa Oblitas** (University of São Paulo (USP))
Atomic Force Microscopy: basic concepts and data