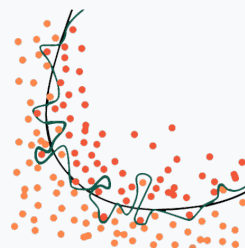# The Mathematics of Machine Learning Workshop

Date: **18th — 21th June, 2024**
Organizers: Prof. Fanny Yang
Prof. Niao He
Dr. Santiago Mazuelas

Program (Part I)

	Tuesday, 18th June
9:00 - 10:00	**A Theory of Universal Learning** Steve Hanneke – Purdue University
10:00 - 11:00	**A Theory of Interpretable Approximations** Nicolò Cesa-Bianchi – University of Milan
11:00 - 11:30	*Coffee break*
11:30 - 12:30	**Inference for the Wasserstein Distance Between Mixing Measures in Topic Models** Florentina Bunea – Cornell University
12:30 - 14:00	*Lunch time*
14:00 - 15:00	**Differentially Private M-Estimation via Noisy Optimization** Po-Ling Loh – University of Cambridge
15:00 - 16:00	**Differentially Private Algorithms for Statistical Estimation Problems** Rachel Cummings – Columbia University

	Wednesday, 19th June
9:00 - 10:00	**Optimization, Robustness and Attention in Deep Learning: Insights from Random and NTK Feature Models** Marco Mondelli – IST Austria
10:00 - 11:00	**Operator Learning for Dynamical Systems and Spectral Bounds** Massimiliano Pontil – Istituto Italiano di Tecnologia
11:00 - 11:30	*Coffee break*
11:30 - 12:30	**TDS Learning** Adam Klivans – The University of Texas at Austin
12:30 - 14:00	*Lunch time*
14:00 - 15:00	**Looking beyond the Worst-Case Adversaries in Machine Learning** Nika Haghtalab – UC Berkeley
16:00 - 19:00	*Poster sessions I & II* ***(Location at ETH AI Center, Oerlikon (take the tram))*** 1 hour and 20 minutes / session + 20 minutes coffee break

Program (Part II)

	Thursday, 20th June
9:00 - 10:00	**Harnessing Geometric Signatures in Causal Representation Learning** Yixin Wang – University of Michigan
10:00 - 11:00	**The Physics of Machine Learning** Lenka Zdeborova – EPFL
11:00 - 11:30	*Coffee break*
11:30 - 12:30	**The Impacts of Overparameterization under Distribution Shift** Tong Zhang – HKUST
12:30 - 14:00	*Lunch time*
14:00 - 15:00	**Pure Exploration Problems** Wouter Koolen – University of Twente
16:00 -	*Speakers Event*

	Friday, 21th June
9:00 - 10:00	**Reduced variance Stochastic Mirror Descent for Large-Scale Sparse Recovery** Anatoli Juditsky – Université Grenoble Alpes
10:00 - 11:00	**Theoretical Foundation of Mean Field Langevin Dynamics and Its Application to Neural Network Optimization** Taiji Suzuki – The University of Tokyo
11:00 - 11:30	*Coffee break*
11:30 - 12:30	**Learning Representations and Associations with Gradient Descent** Jason D. Lee – Princeton University
12:30 - 14:00	*Lunch time*
14:00 - 15:00	**Causal Effect Estimation with Context and Confounders** Arthur Gretton – Gatsby, UCL, DeepMind

WiFi Network

- You can use the eduroam network.

- There is also the ETH guest network. These networks have SSIDs: public (2.4GHz) or public-5 (5GHz). For more details, please visit this page.

Locations

Location of the invited talks

Address:

ETH Zurich Zentrum HG E 1.1
Rämistrasse 101
8006 Zurich, Switzerland

Public Transportation to ETH HG:
- To reach ETH Hauptgebäude (HG), you may take tram numbers 4, 5, 6, 8, 9, or 10, and get off at the *ETH/Universitätsspital* station.
- If departing from Zurich Hauptbahnhof (main station), please take tram number 6 or 10. It takes approximately 10 minutes.
- It is recommended to find public transportation information via the SBB mobile app or on their website.

Upon Arrival at ETH HG:

Location of the poster sessions

Address:

ETH AI Center, OAT X11,
Andreasstrasse 5
8092 Zurich, Switzerland

Public Transportation to OAT:
You can take tram number 10 from ETH HG to ETH OAT. It takes about 20 minutes.

Local Transportation

For more information about the public transport system in Zurich and Switzerland, please refer to the following links:

- ZVV / Zürich
- SBB / Switzerland

Gastronomy

The ETH offers many different opportunities in terms of cafeterias and restaurants to choose from. Here you get an overview of the diversity.

Fanny's recommendations near ETH HG and the Ibis hotel:

- Kleine Freiheit: Mezze food, outside seating.

- Bombay Karachi: Pakistani food, takeaway and some seating.

- Klara's kitchen: Vegan, takeaway.

- La Fontana: Italian food, sitdown.

- TinyFish: Sushi takeaway.

- Chopsticks: Chinese food (near Central).

Good restaurants near ETH AI Center, OAT Oerlikon:

- Santa Lucia: Italian food.

- Bellucci: Italian food.

- Ooh!Curry: Indian food.

- Tibits: Vegetarian.

- Dapur: Vegan Indonesian food.

- SimSim: Lebanese food.