

## Conference on Learning Theory 2022: Preface

**Po-Ling Loh**

*University of Cambridge*

PLL28@CAM.AC.UK

**Maxim Raginsky**

*University of Illinois*

MAXIM@ILLINOIS.EDU

**Editors:** Po-Ling Loh and Maxim Raginsky

These proceedings contain the 155 papers accepted to and presented at the 35th Conference on Learning Theory (COLT), held in London, UK, on July 2–5, 2022. The conference was preceded on July 1 by a one-day workshop jointly organized by COLT and the IMS (Institute of Mathematical Statistics). Both were held at the Royal Institution of London. The conference was held in a *minimal hybrid format*: most presentations and all keynote talks were delivered in person, but there was a number of virtual sessions in the program.

The papers were selected by the program committee, with the additional help of external expert reviewers, from 470 submissions. Every paper was presented in a 10-minute talk, and the authors were given an option to prerecord a longer 20-minute version that was hosted by SlidesLive. These proceedings also contain seven open problems, selected by the Open Problems Chair Clément Canonne and external reviewers from among eight submissions.

The paper “Efficient convex optimization requires superlinear memory” by Annie Marsden, Vatsal Sharan, Aaron Sidford, and Gregory Valiant received the Best Paper Award. The paper “New projection-free algorithms for online convex optimization with adaptive regret guarantees” by Ben Kretzu and Dan Garber received the Mark Fulk Award for Best Student Paper. Both of these papers were presented in 20-minute talks in special Best Paper Award sessions. The paper “Universal online learning: An optimistically universal learning rule” by Moise Blanchard was the best student paper runner-up. The decisions on paper awards were reached with the help of an *ad hoc* committee composed of past COLT Program Chairs.

In addition to the papers and open problems published in these proceedings, the conference program included three keynote talks:

- “Recent advances in streaming and private heavy hitters” by Jelani Nelson (University of California Berkeley)
- “Policy optimization for learning control policies: global optimality and convex parameterization” by Maryam Fazel (University of Washington)
- “Robust learning from untrusted sources: The best things in life are (almost) free” by Alon Orlitsky (University of California San Diego).

The program also featured two mentoring events: There was an in-person panel on “Starting your academic journey” organized by the Learning Theory Alliance (LeT-All). LeT-All is a community-building and mentorship initiative led by Ellen Vitercik, Nika Haghtalab, and Surbhi Goel. The focus of the panel, moderated by Thodoris Lykouris, was on preparing for an academic job, navigating

the job market, and starting a tenure-track position. The panelists were Akshay Krishnamurthy, Po-Ling Loh, Gergely Neu, and Ohad Shamir. There was also a Women in Machine Learning Theory (WiML-T) lunch, featuring a coffee chat with Claire Vernade, Po-Ling Loh, and Ciara Pike-Burke.

The success of this year's conference would not have been possible without the Local Chairs Benjamin Guedj and Ciara Pike-Burke and the Online Experience Chair Claire Vernade. They did the hard work of finding the venue (despite some unexpected challenges), planning the logistics, organizing the reception and the conference gala dinner, and ensuring that the minimal hybrid format of COLT provided a smooth experience for all participants, both in-person and remote. We would like to acknowledge the hard work of the program committee and the external reviewers. We would also like to express our gratitude to our Webmaster Daniel Hsu and to the Publication Chair Suriya Gunasekar.

Finally, we would like to thank our generous sponsors: DeepMind, Google, and Microsoft.