France June 30 - July 4, 2025

CONFERENCE WEBSITE: https://learningtheory.org/colt2025

About the Conference

The 38th Annual Conference on Learning Theory (COLT 2025) will take place June 30th-July 4th, 2025 in Lyon, France. We invite submissions of papers addressing theoretical aspects of machine learning, broadly defined as a subject at the intersection of computer science, statistics and applied mathematics. We strongly support an inclusive view of learning theory, including fundamental theoretical aspects of learnability in various contexts, and theory that sheds light on empirical phenomena.

The topics include but are not limited to:

Design and analysis of learning algorithms
Statistical and computational complexity of learning
Optimization methods for learning, including online and stochastic optimization
Theory of artificial neural networks, including deep learning
Theoretical explanation of empirical phenomena in learning
Supervised learning
Unsupervised, semi-supervised learning, domain

Important Dates

JUN 30

CONFERENCE DATE
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adaptation
Learning geometric and topological structures in data, manifold learning
Active and interactive learning
Reinforcement learning
Online learning and decision-making
Interactions of learning theory with other mathematical fields
High-dimensional and non-parametric statistics
Kernel methods
Causality
Theoretical analysis of probabilistic graphical models
Bayesian methods in learning
Game theory and learning
Learning with system constraints (e.g., privacy, fairness, memory, communication)
Learning from complex data (e.g., networks, time series)
Learning in neuroscience, social science, economics and other subjects
Submissions by authors who are new to COLT are encouraged.

While the primary focus of the conference is theoretical, authors are welcome to support their analysis with relevant experimental results.

Accepted papers will be presented at the conference. At least one author of each accepted paper should present the work at the conference. Accepted papers will be published electronically in the Proceedings of Machine Learning Research (PMLR). Authors of accepted papers will have the option of opting out of the proceedings in favor of a 1-page extended abstract, which will point to an

open access archival version of the full paper reviewed for COLT.

PAPER AWARDS

COLT will award both best paper and best student paper awards. To be eligible for the best student paper award, the primary contributor(s) must be full-time students at the time of submission. The program committee may decline to make these awards, or may split them among several papers.

DUAL SUBMISSIONS POLICY

Conferences: In general, submissions that are substantially similar to papers that have been previously published, accepted for publication, or submitted in parallel to other peer-reviewed conferences with proceedings may not be submitted to COLT.

Journals: In general, submissions that are substantially similar to papers that have been previously published, accepted for publication, or submitted in parallel to journals may not be submitted to COLT.

REBUTTAL PHASE

As in previous years, there will be a rebuttal phase during the review process. Initial reviews will be sent to authors before final decisions have been made. Authors will have an opportunity to address the issues brought up in the reviews.

REVIEWING PHILOSOPHY

We strongly encourage constructive feedback that can help authors improve their work. The aim of the reviewing process is to assess whether the

work is close to being ready for publication; as such, the interaction between authors and referees is meant to both figure this out and guide the paper into a publishable state.

We recommend the following video for a thoughtful discussion of such aims and related issues: IACR Distinguished Lecture: Caught in Between Theory and Practice