

## Conference on Learning Theory 2018: Preface

**Sbastien Bubeck**

*Microsoft Research*

SEBUBECK@MICROSOFT.COM

**Philippe Rigollet**

*Massachusetts Institute of Technology*

RIGOLLET@MIT.EDU

**Editors:** Sébastien Bubeck, Vianney Perchet and Philippe Rigollet

These proceedings contain the 91 papers accepted to and presented at the 31st Conference on Learning Theory (COLT), held in Stockholm, Sweden on July 6-9, 2018. These papers were selected by the program committee with additional help from external expert reviewers from 335 submissions. All papers were given a 10 minutes presentation, except for the best paper with 30 minutes. Each accepted paper was also given the opportunity to present a poster at the conference.

In addition to the papers published in these proceedings, the conference program also included three invited talks, by Stephane Mallat, Susan Murphy, and Johan Håstad. The paper “Algorithmic Regularization in Over-parameterized Matrix Sensing and Neural Networks with Quadratic Activations” by Yuanzhi Li, Tengyu Ma and Hongyang Zhang received the best paper award. The best student paper awards were given to the papers “Reducibility and Computational Lower Bounds for Problems with Planted Sparse Structure” by Matthew Brennan, Guy Bresler and Wasim Huleihel; and “Logistic Regression: The Importance of Being Improper” by Dylan Foster, Satyen Kale, Haipeng Luo, Mehryar Mohri and Karthik Sridharan.

The local arrangements chair was Alexandre Proutiere, and the publication chair was Vianney Perchet. We would like to express our gratitude to the entire program committee and to the external reviewers for their invaluable contributions to the success of the conference. Finally, we would like to thank our generous platinum sponsors: Google AI, Western Digital, American Express; gold sponsors: Microsoft, Baidu; and silver sponsors: Mobileye, DE Shaw & co, IBM Research, AWS; and finally the Mark Fulk Foundation. We would also like to acknowledge the organizational and logistical support provided by KTH Royal Institute of Technology.

Sebastien Bubeck and Philippe Rigollet

COLT 2018 Program Chairs