

UNCERTAINTY IN ARTIFICIAL INTELLIGENCE



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Preface

The Conference on Uncertainty in Artificial Intelligence (UAI) is the premier international conference on research related to representation, inference, learning and decision making in the presence of uncertainty within the field of Artificial Intelligence. This volume contains all papers that were accepted for the 34th UAI Conference, held in Monterey, California, from August 6 to 10, 2018.

Papers appearing in this conference were subjected to a rigorous review process. A total of 337 papers were reviewed by at least 3 reviewers each. Of these, 104 papers were accepted, for an acceptance rate of close to 31%. We are very grateful to the program committee and senior program committee members for their diligent efforts. We are confident that the proceedings, like past UAI conference proceedings, will become an important archival reference for the field.

We are pleased to announce that the Best Paper Award was awarded to Krishnamurthy Dvijotham, Robert Stanforth, Sven Gowal, Timothy Mann and Pushmeet Kohli for their paper “A Dual Approach to Scalable Verification of Deep Networks.” The Best Student Paper Award was awarded to Amin Jaber, Jiji Zhang and Elias Bareinboim for their paper “Causal Identification under Markov Equivalence.” We are grateful to the members of the best paper committee: Thomas Richardson, Ilya Shpitser and David Sontag.

In addition to the presentation of technical papers, we were very pleased to have four distinguished invited speakers at UAI 2018: Michael C. Frank (Stanford University), Joelle Pineau (McGill University and Facebook), Stuart Russell (UC Berkeley) and Raquel Urtasun (University of Toronto and Uber).

The UAI 2018 tutorials program, chaired by Shakir Mohamed, consisted of four invited tutorials: “Tackling Data Scarcity in Deep Learning” by Anima Anandkumar (Caltech and Amazon AI) and Zachary Lipton (Carnegie Mellon University), “Recent Progress in the Theory of Deep Learning” by Tengyu Ma (Facebook and Stanford University), “Bayesian Approaches for Blackbox Optimization” by Matt Hoffman (DeepMind), and “Machine Reading” by Sebastian Riedel (UCL), Johannes Welbl (UCL) and Dirk Weissenborni (German Research Center for Artificial Intelligence).

UAI 2018 also hosted three workshops, chaired by Yarin Gal: Safety, Risk and Uncertainty in RL organized by Emma Brunskill (Stanford), Audrey Durand (McGill), Vincent Franois (McGill), Daniel (Zhaohan) Guo (CMU), Joelle Pineau (McGill), and Guillaume Rabusseau (McGill); The 7th Causal Inference Workshop organized by Bryant Chen (IBM), Panos Toulis (University of Chicago) and Alexander Volfovsky (Duke University); and Uncertainty in Deep Learning organized by Andrew Wilson (Cornell), Balaji Lakshminarayanan (Deepmind), Dustin Tran (Columbia, Google) and Matt Hoffman (Google).

Following the success of last years event, UAI 2018 continued to hold MLTrain, a hands-on training session on modern machine learning technologies organized by Nikolaos Vasiloglou. This year we partnered with the Linqs team from UC Santa Cruz and with the Pyro team from Uber ATG and teach UAI participants probabilistic programming. We covered the fundamentals of modeling with Probabilistic Soft Logic a new language that redefines the way we blend human expertise with machine learning.

Amir Globerson and Ricardo Silva (Program Co-Chairs)
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Acknowledgments

The success of UAI depends greatly on the efforts of many individuals who volunteer their time to provide expert and detailed reviews of submitted papers. In particular, the Program Committee and Senior Program Committee for UAI 2018 were responsible for generating reviews and recommendations for the submissions to the conference. Each submitted paper was reviewed by at least 3 members of the Program Committee. The Senior Program Committee then assessed the individual reviews for each paper, moderated discussion among Program Committee members if needed, and generated meta-reviews and recommendations for the program chairs. We are extremely grateful for the efforts of all of the individuals listed below.

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