

Proceedings of "Thinking Fast and Slow and Other Cognitive Theories in AI", a AAAI 2022 fall symposium

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Abstract

This volume contains the papers presented at the AAAI 2022 Fall Symposium "Thinking Fast and Slow and Other Cognitive Theories in AI", that was held on November 17th-19th, 2022, as an in person event at the Westin Arlington Gateway in Arlington, Virginia, USA. These papers were selected by an international program committee among all those submitted to the symposium through an open call.

1. Aim of the symposium

State-of-the-art AI has many successful and useful applications, but it is often also narrow in scope and demonstrates several limitations including the lack of deep understanding of information coming from data, the absence of common-sense reasoning, the difficulty in dealing with causality, and the inability to learn general concepts from few data. To solve a given problem, AI systems usually employ either machine learning or a logical reasoning approach. Each of these approaches has its strengths and weaknesses, but it is hoped that their combination that will bring about a new generation of advanced AI. It is indeed now recognized by the whole scientific AI community that end-to-end machine learning (or deep learning) approaches, although very successful in specific scenarios, cannot bring AI to the next level, and that we need to carefully and effectively combine both machine learning and reasoning techniques. The importance of this combination of methods can be seen in the many specific approaches to neuro-symbolic AI, as well as several workshops and other initiatives in this space.


AAAI 2022 FALL SYMPOSIUM SERIES, *Thinking Fast and Slow and Other Cognitive Theories in AI track*, November 17-19, Westin Arlington Gateway in Arlington, Virginia, USA

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 CEUR Workshop Proceedings (CEUR-WS.org)

This symposium aimed to bring together cutting-edge researchers in these areas to discuss the combination of machine learning and symbolic reasoning techniques at a more general and multi-disciplinary level, by taking inspiration from cognitive theories of human decision making, such as the dual system theory (thinking fast and slow) of Daniel Kahneman.

The symposium web site can be found at this URL: <https://sites.google.com/view/aaai-fss22/home-page>

2. Program Committee

The program committee included the following researchers, who reviewed papers and made the final decisions about acceptance for presentation and inclusion in the proceedings. We received a total of 17 submissions, of which 11 have been accepted.

- Yoshua Bengio (University of Montreal)
- Marianna Bergamaschi Ganapini (Union College)
- Artur Garcez (City University London)
- Lior Horesh (IBM Research)
- Iuliia Kotseruba (York University)
- Luis Lamb (UFRGS University)
- Andrea Loreggia (University of Brescia)
- Nicholas Mattei (Tulane University)
- Shrisha Rao (International Institute of Information Technology)
- Mattia Rigotti (IBM Research)
- Francesca Rossi (IBM Research)
- Alessandra Russo (Imperial College)
- Biplav Srivastava (AI Institute)

3. Organizing Committee

The symposium was organized by the following researchers, with the support of the AAAI office.

- Marianna Bergamaschi Ganapini (Union College)
- Lior Horesh (IBM Research)
- Luis Lamb (UFRGS University)
- Andrea Loreggia (University of Brescia)
- Nicholas Mattei (Tulane University)
- Francesca Rossi (IBM Research)
- Biplav Srivastava (AI Institute)
- Brent Venable (University of South Florida and IHMC)