Welcome Message from the Chairs

Welcome to AAMAS 2022, the 21st edition of the International Conference on Autonomous Agents and Multiagent Systems!

AAMAS gathers researchers and practitioners from around the world to share and discuss the latest advances in the field of autonomous agents and multiagent systems, and provides an internationally renowned high-profile forum for publishing and keeping up to date on all areas of agent technology. AAMAS is the flagship conference of the non-profit International Foundation for Autonomous Agents and Multiagent Systems (IFAAMAS).

This edition of the conference, as in 2020 and 2021, will be held as a virtual event due to the COVID-19 pandemic. Previous editions were held in Bologna (2002), Melbourne (2003), New York (2004), Utrecht (2005), Hakodate (2006), Honolulu (2007), Estoril (2008), Budapest (2009), Toronto (2010), Taipei (2011), Valencia (2012), Saint Paul (2013), Paris (2014), Istanbul (2015), Singapore (2016), São Paulo (2017), Stockholm (2018), Montréal (2019), Auckland (2020, virtual), and London (2021, virtual).

We invited authors to submit their best work in the area of agents and multiagent systems to the conference, and to associate their paper with one of the ten areas of interest:

- Coordination, Organisations, Institutions, and Norms (COIN)
- Markets, Auctions, and Non-Cooperative Game Theory (MA&NCGT)
- Social Choice and Cooperative Game Theory (SC&CGT)
- Knowledge Representation, Reasoning, and Planning (KRRP)
- Learning and Adaptation (LEARN)
- Modelling and Simulation of Societies (SIM)
- Humans and AI / Human-Agent Interaction (HUM)
- Engineering Multiagent Systems (EMAS)
- Robotics (ROBO)
- Innovative Applications (APP)

We worked with a three-tier programme committee, consisting of 21 area chairs from Australia, Brazil, China, Denmark, Japan, France, Italy, Israel, The Netherlands, USA, UK, with a good balance in gender and geographical coverage, 103 senior programme committee members, 487 regular programme committee members, and 252 auxiliary reviewers.

When composing the committee, we followed the tradition of AAMAS of not having anyone serve in a senior programme committee or area chair role for more than two years in a row.

The programme committee put an amazing effort in providing thoughtful reviews (512 words per review on average), commenting on the papers and the authors' rebuttal (more than 190K words exchanged in total during the discussion stage), and meeting the deadlines: thanks to their work, we were able to notify the decisions to authors two days ahead of schedule! The Best Programme Committee Member award was assigned to 14 members of the programme committee and the Best Senior Programme Committee Member awards was assigned to 13 senior programme committee members, fairly distributed among the ten AAMAS 2022 areas of interest.

For the main track, we received a total of 787 submissions by the abstract deadline; 636 submissions were left by the paper deadline and 630 were assigned for review. Some withdrawals took place while reviewing was on, leading to a final number of 615 papers left. Almost all submissions received three reviews or more, as well as a meta-review summarising the assessment by the programme committee. Authors had the opportunity to respond to initial versions of their reviews during a rebuttal phase.

Out of the 615 papers left at the notification deadline, 166 were accepted as full papers (27%) and 90 as posters (14.6%), resulting in an overall acceptance rate of 41.6%.

The number of papers at the end of the review period (N), the number of papers accepted as full (FP), the number of papers accepted as posters (PP), acceptance rates for full papers (FPR), and overall acceptance rates (AR) per area of interest are as follows:

	N	FP	PP	FPR	AR
COIN	24	6	2	25%	33%
MA&NCGT	67	16	11	24%	40%
SC&CGT	88	30	16	34%	52%
KRRP	83	21	12	25%	40%
LEARN	173	43	21	25%	37%
SIM	42	10	6	24%	38%
HUM	48	18	7	38%	52%
EMAS	17	4	3	24%	41%
ROBO	48	11	8	23%	42%
APP	25	7	4	28%	44%

In addition to the main track, the conference has three special tracks — the Blue Sky Ideas track, the JAAMAS track, and the Demonstration track — as well as a Doctoral Consortium. The focus of the Blue Sky Ideas track, which this year is chaired by Bo An and Kate Larson, is on visionary ideas, long-term challenges, new research opportunities, and controversial debate. The JAAMAS track, chaired by Mehdi Dastani, offers authors of papers recently published in the Journal of Autonomous Agents and Multiagent Systems (JAAMAS) that have not previously appeared as full papers in an archival conference the opportunity to present their work at AAMAS. The Demonstration track, chaired by Noa Agmon and Mubbasir Kapadia, allows participants from both academia and industry to showcase their latest developments in agent-based and robotic systems. Finally, the Doctoral Consortium, chaired by Hau Chan and Stacy Marsella, provides doctoral candidates with an opportunity to receive feedback on their research, to interact closely with senior figures in their own area of specialisation, and to broaden their professional network.

The accepted contributions for all of these tracks are included in these proceedings as well: 9 accepted papers out of 28 submissions to the Blue Sky Ideas track; extended abstracts of 11 recent papers published in JAAMAS; 11 accepted summaries out of 27 submissions to the Demonstration track; and 20 accepted summaries out of 20 submissions to the Doctoral Consortium.

The first two days of the conference, on the 9th and 10th of May 2022, will consist of a variety of satellite workshops, a programme of tutorials, and the Doctoral Consortium.

The main conference will run from the 11th to the 13th of May 2022. During this time the authors of contributions to the

main track, the Blue Sky Ideas track, the JAAMAS track, and the Demonstration track will present their work. Each paper will be presented twice, during two different time slots. We did our best to ensure that for each paper the two slots would have different flavor. One, which does not necessarily happen earlier, would contain papers related to each other and one would be more exploratory and would contain less related papers. As a side effect, the authors, who would attend both slots to answer potential questions, would not have to watch presentations of the same papers twice.

Five keynote speakers will give talks during the main conference days:

- Shafi Goldwasser, Director of Simons Institute for the Theory of Computing and Professor at UC Berkeley (EECS), MIT (EECS) and Weizmann Institute (CS, Applied Math), will talk of *Safe Machine Learning: Robustness, Verification and Privacy*. She will present cryptography inspired models of adversaries in the machine learning landscape and results to address three challenges. These challenges include verification of machine learning models given limited access to good data, training at scale on private training data, and robustness against adversarial examples controlled by worst-case adversaries.

- Mark Sagar, co-founder and CEO of Soul Machines and director of the Laboratory for Animate Technologies at the Auckland Bioengineering Institute, will talk about *Autonomous Animation*: animators create the illusion of life by imagining the behaviours, emotion, motivation and physical embodiment of characters as they interact with other characters and the world. What if a digital character or virtual human could interact with us face to face in real time, and was animated by its own perceptions, emotions and motivations arising from its own experiences and disposition? The talk will discuss some of the challenges in creating autonomously animated virtual humans with virtual brains and nervous systems, capable of highly expressive face to face interaction and real-time learning and emotional response.

- Johanna Seibt, Professor, Research Unit for Robophilosophy and Integrative Social Robotics, Aarhus University, will present *The Aims of Social Robotics*: the immediate objective of social robotics is to produce embodied artificial agents that can safely perform useful functions in public places, social institutions, or domestic contexts. The focus on physical safety and functionality overlooks, however, that the environments of human social interactions are highly complex symbolic spaces. As neuroscience and behavioral research shows, social robots are not perceived as tools but as 'social others'–humans tend to sociomorph robots (not: 'anthropomorphise'). In fact, the interactive functionality of social robots depends on simulation of emotions and intentionality. This raises ethical questions about social robotics—can we learn to navigate between real and simulated social agents? Do we need to fear irreparable disruptions of human social reality? Professor Seibt will introduce the

paradigm of "Integrative Social Robotics" (ISR), which integrates relevant expertise from the Humanities into R&D process in social robotics at all technology readiness levels. The principles of ISR enable multidisciplinary developer teams to create culturally sustainable (value-preserving) applications, and pave the way for positive (value-enhancing) social robotics.

- On the occasion of receiving the Victor Lesser Distinguished Dissertation Award, Bryan Wilder will give a talk on *AI for Population Health: Melding Data and Algorithms on Networks*.

- Last but not least, Professor Maria Gini will give a talk on *Decentralised Allocation of Tasks to Agents and Robots* on the occasion of receiving the ACM/SIGAI Autonomous Agents Research Award for her work on AI in the field of robotics and multi-agent systems.

The conference will also feature a social event, a series of informal discussion sessions organised around specific topics, and the annual IFAAMAS Community Meeting.

Organising such an even as the AAMAS conference requires tremendous work from a really large group of people. We are deeply grateful to the authors who trusted us by submitting their papers, the programme committee members who put countless hours into reviewing these papers, and to the senior programme committee members who oversaw this process, summarised the reviews, and made sure that the authors receive polite, helpful, high-quality reviews. None of that, however, would be possible without an exceptional team of area chairs, who recruited the programme committee members and organised their work. We are also very grateful for the work of the local team, which suddenly had to change into the virtual/online team, when—once again—the hopes and plans to run the conference physically turned out to be too optimistic. Finally, we are very grateful to the conference sponsors for their support, which makes AAMAS both possible and affordable. We hope you will truly enjoy the conference and we are looking to e-meeting you now and, soon, to meeting you in person!

Piotr Faliszewski & Viviana Mascardi
AAMAS 2022 Programme Chairs

Catherine Pelachaud & Matthew E. Taylor
AAMAS 2022 General Chairs