



AI Matters

Annotated Table of Contents



Welcome to AI Matters 9(3)

Ziyu Yao, co-editor & Anuj Karpatne, co-editor

Full article: <http://doi.acm.org/10.1145/3626487.3626488>

Welcome and Summary



SIGAI Annual Report: July 1 2022 – August 30 2023

Sanmay Das, Nicholas Mattei, John P. Dickerson, Sven Koenig, Louise Dennis, Larry Medsker, Ziyu Yao, Anuj Karpatne, Alan Tsang & Matt Luckcuck

Full article: <http://doi.acm.org/10.1145/3626487.3626489>

Annual Report



AI Policy Matters

Larry Medsker

Full article: <http://doi.acm.org/10.1145/3626487.3626490>

AI Policy Matters



Conference Reports

Louise A. Dennis

Full article: <http://doi.acm.org/10.1145/3626487.3626491>

Conference Reports

Links

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Newsletter: <https://sigai.acm.org/main/ai-matters/>

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



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Contents Legend

| | |
|---|-----------------------------|
|  | Book Announcement |
|  | Ph.D. Dissertation Briefing |
|  | AI Education |
|  | Event Report |
|  | Hot Topics |
|  | Humor |
|  | AI Impact |
|  | AI News |
|  | Opinion |
|  | Paper Précis |
|  | Spotlight |
|  | Video or Image |

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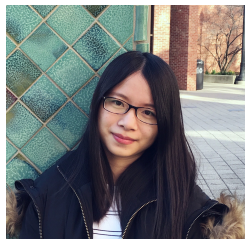
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Issue overview

Welcome to the third issue of this year's AI Matters Newsletter. In this issue, we will summarize the achievement of SIGAI in the past year (July 1, 2022 – August 30, 2023). This annual report will highlight some of the many activities we have completed as a SIG, hoping to provide inspiration for members who wish to get more involved. This issue will also highlight the "AI Policy Matters" column by Dr. Larry Medsker at George Washington University. In this column, Dr. Medsker summarized an update on the ACM US Technology Policy Committee (USTPC) and introduced the TechBrief series at ACM. We welcome blog comments from everyone! Finally, we will end the issue with a conference report by Dr. Louise A. Dennis.

Submit to AI Matters!

Thanks for reading! Don't forget to send your ideas and future submissions to *AI Matters*! We're accepting articles and announcements now for the next issue. Details on the submission process are available at <https://sigai.acm.org/main/ai-matters/>.



Ziyu Yao is co-editor of AI Matters. She is an Assistant Professor in the Department of Computer Science at George Mason University. Her research interests lie in natural language processing (NLP) and artificial intelligence (AI), particularly building natural language interfaces that can reliably assist humans in knowledge acquisition and task completion. She also works in NLP/AI for other disciplines such as Software Engineering and Bioinformatics.

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Anuj Karpatne is co-editor of AI Matters. He is an Assistant Professor in the Department of Computer Science at Virginia Polytechnic Institute and State University (Virginia Tech). He leads the Physics-Guided Machine

Learning (PGML) Lab at Virginia Tech, where he develops novel ways of integrating scientific knowledge (or physics) with machine learning methods to accelerate scientific discovery from data.



SIGAI Annual Report: July 1 2022 – August 30 2023

Sanmay Das (elected; [ACM SIGAI Chair](#))

Nicholas Mattei (elected; [ACM SIGAI Vice-Chair](#))

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Louise Dennis (appointed; [ACM SIGAI Conference Coordination Officer](#))

Larry Medsker (appointed; [ACM SIGAI Public Policy Officer](#))

Ziyu Yao (appointed; [ACM SIGAI Newsletter Editor-in-Chief](#))

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Alan Tsang (appointed; [ACM SIGAI Information Officer](#))

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Introduction

We are delighted to share our annual report with membership. This highlights some of the many activities we do as a SIG, and could provide some inspiration for members who wish to get more involved about the types of activities they could participate in or where they feel new initiatives might be most welcome. If you are interested in being more involved with SIGAI or have ideas for future initiatives, please reach out to any or all of the leadership team.

Health and Viability

ACM SIGAI continues to serve the community of academic educators and researchers, professional practitioners, and students through its five main concrete activities.

- **Conference sponsorship:** We sponsor or co-sponsor several important conferences. Since historically the major AI and machine learning conferences are not ACM sponsored, SIGAI has focused especially on co-sponsoring conferences at the intersection of AI and other areas, and we continue to do this very successfully, including in AI, ethics, and society, HCI, Robotics, Software Engineering, and Mechanism Design. We have successfully added major new conferences (e.g. EAAMO and AIES) to our portfolio over the last 5-6 years.
- **Awards:** We present three major awards (see below for details).

- **Communication with our membership and the broader AI community:** We pursue several communication channels, and our partnership with AIHub in the last few years has enabled better communication with our membership as well as contributing to the mission of responsible reporting on AI.
- **Support for conference attendance:** We strive to help students and those without great access to resources to attend conferences we co-sponsor or are in cooperation with. After Covid, this year has seen a major uptick in demand.
- **Promoting AI education, publications and public outreach activities:** We actively seek out ways to engage with the education community and in public outreach. For example, in the last year, we established a new collaboration with the Educational Advances in AI conference to support new and future AI educators.

Diversity, Equity, and Inclusion

We have several avenues through which we promote diversity, equity, and inclusion. Primary among these had been an effort to fund students from underrepresented groups to attend conferences through a centralized selection process where we could have sufficient numbers as well as insight into the entire pool of applicants to ensure diversity. However, following changes in ACM processes, we have had to rework our travel award scheme. This means we no longer support individual students travelling to conferences, but provide

conferences with a grant which they then allocate. We used this opportunity to relax our criteria to enable conferences to target other at-need groups beyond students if they wish. We are monitoring the allocation of these awards for EDIA purposes, and stressing the importance of considering DEI in allocation to the conferences we award grants to.

Awards

In order to promote work in AI and recognize contributions from students, researchers, and industry, SIGAI distributes three awards annually focused on each of these areas. More information on each of these awards including past winners, nomination procedures, and deadlines, are available at the SIGAI Awards Webiste: <https://sigai.acm.org/main/sigai-awards/>. In the July 1, 2022 - June 30, 2023 we distributed the following awards.

The ACM SIGAI Autonomous Agents Research Award is presented for excellence in research in the area of autonomous agents. The recipient is invited to give a talk at the International Conference on Autonomous Agents and Multiagent Systems (AAMAS). The 2023 ACM SIGAI Autonomous Agents Research Award was presented at AAMAS 2023 in London, United Kingdom to Professor Edith Elkind, Professor of Computer Science at the University of Oxford. Prof. Elkind's work provides fundamental understanding of economic paradigms in multiagent systems, with a particular focus on computational social choice and game theory. She has made important contributions to the computational analysis of cooperative games, as well as to the studies of structured domains in elections, and hedonic games. Professor Elkind supervised two PhD theses that won the Victor Lesser Distinguished Dissertation Award. Her service to the community has been extraordinary; among many other roles, she has served both as a program chair and a general chair for AAMAS, and as a program chair for IJCAI, ACM EC, WINE, and COMSOC.

ACM SIGAI also sponsors the ACM SIGAI Industry Award for Excellence in AI, an annual award which is given to an individual or team in industry who created a fielded AI application in recent years that demonstrates the power of AI techniques via a combination of the follow-

ing features: novelty of application area, novelty and technical excellence of the approach, importance of AI techniques for the approach and actual and predicted societal impact of the application. The 2022 ACM SIGAI Industry Award for Excellence in Artificial Intelligence was awarded at IJCAI 2022 Industry Day in Vienna, Austria to Sony's Gran Turismo Sophy (TM). Sony's Gran Turismo Sophy(TM) is a project developed by Sony AI, Sony Interactive Entertainment and Polyphony Digital. Gran Turismo (GT) Sophy is a collection of agents trained using reinforcement learning (RL) techniques to race in Gran Turismo, a hyper-realistic, physics-based automotive racing simulator. The GT Sophy team developed novel, state-of-the-art RL methods for this purpose. Racing against some of the world's best e-sports drivers, GT Sophy has not only performed at world-class levels, it also won a team event in October 2022 by an impressive margin. GT Sophy has demonstrated that SOTA RL can be applied effectively to continuous control problems requiring performance at the edge of human capabilities, while respecting the informal norms and protocols associated with racing. Apart from the impact on gaming, the technology offers potential societal benefits in areas such as simulation-based training and autonomous vehicle development, among others.

ACM SIGAI also sponsors, jointly with AAAI, the AAAI/ACM SIGAI Doctoral Dissertation Award to recognize and encourage superior research and writing by doctoral candidates in AI. This annual award is presented at the AAAI Conference on AI in the form of a certificate and is accompanied by the option to present the dissertation at the AAAI conference as well as to submit a six page summary to both the AAAI proceedings and the ACM SIGAI newsletter. Unfortunately, the committee has fallen behind on selecting the award winner; we expect the next award winner to be announced this Fall, with the award to be presented at AAAI 2024.

Significant papers on new areas that were published in proceedings

- A Generalized Inverted Dirichlet Predictive Model for Activity Recognition using Small Training Data by Jiaxun Guo, Manar Amayri,

- Wentao Fan and Nizar Bouguila. Best Application Paper award at IEA/AIE 2023
- Evolution of Prioritized EL Ontologie by Rim Mohamed, Zied Loukil, Faiez Gargouri and Zied Bouraoui. Best Theory Paper award at IEA/AIE 2023
- An Oriented Attention Model for Infectious Disease Cases Prediction by Peisong Zhang, Zhijin Wang, Guoqing Chao, Yaohui Huang and Jingwen Yan. Best Special Session Paper award at IEA/AIE 2023
- Multi-Granular Large Scale Group Decision-Making Method with a new Consensus Measure Based on Clustering of Alternatives in Modifiable Scenarios by Jose Ramon Trillo, Ignacio Javier Perez, Enrique Herrera-Viedma, Juan Antonio Morente-Molinera and Francisco Javier Cabrerizo. Best Technical Presentation award at IEA/AIE 2023
- Virtual Backlash: Nonverbal expression of dominance leads to less liking of dominant female versus male agents by Janet Wessler, Tanja Schneeberger, Leon Christidis and Patrick Gebhard. Best Paper award at IVA 2022
- Hetero-Rec: Optimal Deployment of Embeddings for High-Speed Recommendations by Chinmay N Mahajan, Ashwin Krishnan, Manoj Nambiar and Rekha Singhal. Best Paper award at AILMLSystems 2022
- Data efficient class incremental learning by Jayateja Kalla and Soma Biswas. Best Doctoral Symposium award at AILMLSystems 2022
- Bias, Consistency, and Partisanship in U.S. Asylum Cases: A Machine Learning Analysis of Extraneous Factors in Immigration Court Decisions by Vyoma Raman, Catherine Vera and C.J. Manna Best Paper award at EAAMO 2022
- Improving Access to Housing and Supportive Services for Runaway and Homeless Youth: Reducing Vulnerability to Human Trafficking in New York City by Yaren Bilge Kaya, Kayse Maass, Geri Dimas, Renata Konrad, Andrew Trapp and Meredith Dank Best Student paper award at EAAMO 2022
- On Meritocracy in Optimal Set Selection by Thomas Kleine Buening, Meirav Segal, Debabrota Basu, Anne-Marie George and Christos Dimitrakakis Best Student paper award at EAAMO 2022

- Dimensions of Diversity in Human Perceptions of Algorithmic Fairness by Nina Grgič-Hlača, Gabriel Lima, Adrian Weller and Elissa M. Redmiles New Horizons award at EAAMO 2022

Conference Activity

2022-23 has represented a return to normality in our conference programming after the disruptions of the past couple of years. ACM SIGAI has decided that, despite the move back towards in person conferences, our preference is that conferences provide support for remote attendance and, in particular, remote attendance for speakers. This is now communicated to conferences when we accept sponsorship and in-cooperation requests. We have seen an influx of new requests for in-cooperation agreements and are reviewing our policies around accepting these and their eligibility for travel award grants.

ACM SIGAI sponsored the following conferences in 2022 and 2023:

- EAAMO '22
- WI-IAT '22
- ASE 2022
- CSCS 2022
- HRI 2023
- IUI 2023
- AIES 2023

and it will sponsor the following conferences coming up in 2023 and 2024:

- ASE 2023
- IVA 2023
- EAAMO 2023
- K-CAP 2023
- CSCS 2023
- IUI 2024
- HRI 2024
- ASE 2024

ACM SIGAI supported the following in-cooperation events covering a wide thematic and geographical range across the international AI community:

- RecSys 2022
- BIOSTEC 2023
- ICPRAM 2023
- ICAART 2023
- FDG 2023
- IMPROVE 2023
- ICEIS 2023
- AAMAS 2023
- ICAIL 2023
- ICIKS 2023
- SIMULTECH 2023
- Delta 2023
- IEA/AIE 2023
- AICS 2023

Special Projects and Non-Conference Programs

Newsletter

In the past year, we have published four issues of AI Matters (Volume 8, Issue 3&4 in 2022, and Volume 9, Issue 1&2 in 2023). In almost all the issues, we have “Conference Reports” by Dr. Louise Dennis and “AI Events” by Dr. Dilini Samarasinghe. Excitingly, in this year, we have gotten back the “Paper Précis” column, where we invite presentations about recently awarded or award-nominated papers from AI venues. In our latest issue (Volume 9, Issue 2), we received three submissions to this column, covering topics such as agent navigation, causality, and 3D human motion modeling. This column is managed by Dr. Dongkuan Xu, a new member of the SIGAI AI Matters editor team. Dr. Xu is currently an Assistant Professor in the Computer Science department of North Carolina State University. His research focuses on “Landed Generative AI (LaGAI)”, including solving full-stack LaGAI problems ranging from theoretical optimization methods to data-centric strategies and to co-design of algorithms and hardware. Finally, AI Matters is the venue for publishing EAAI-23 Blue Sky Ideas in AI Education, reported by Guerzhoy et al.

Website and Social Media

The ACM SIGAI Twitter account (@acm_sigai) continues to be a useful avenue to communicate with our members and the wider public about AI in research and industry. The account has been helpful to disseminate information about the winners of the various awards that we support and funding opportunities that are available. AIHub remains a key partnership. In addition to sending monthly digests of AI news and information to our membership, we are sharing posts that link to their articles. We also recently had a (virtual) meeting with two key people who run the AIHub to feedback any communication support needs SIGAI might have, this also proved useful to understand how other organizations that support the AIHub are running their communications. The accounts follower count has risen slightly over the year, from 833 to 949. Over the past year, our posts were viewed an average of 2415.33 times each, an increase on last year. This is without paying for any promotional support from Twitter to boost posts, etc. The co-information officer in charge is monitoring the ongoing ups and downs in the utility of Twitter (or X as it has recently been renamed) for supporting SIGAI.

AI Education

ACM SIGAI co-funded the AAI/ACM SIGAI New and Future AI Educator Program at EAAI-23, the 13th Symposium on Educational Advances in Artificial Intelligence, collocated with AAI-23. EAAI provides a venue for researchers and educators to discuss pedagogical issues and share resources related to teaching and using AI in education across a variety of curricular levels (K-12 through post-graduate training), with an emphasis on undergraduate and graduate teaching and learning. The New and Future AI Educator Program provides a platform for new educators (early career lecturers, assistant professors, and other university or secondary school faculty) and future educators (full-time PhD candidates or postdocs at colleges and universities who intend a career in academia) to attend EAAI to actively share and discuss their ideas and visions for AI education. Specifically, the program provided partial travel support for 4 awardees to attend EAAI-23 in

Toronto, CA. Awardees presented their blue sky ideas at the symposium in February 2023, enabling discussions and providing networking opportunities for new educators. They further collaborated on an article summarizing their ideas and visions for AI education. This article is currently pending publication in the ACM SIGAI AI Matters magazine.

Public Policy Activities

Larry Medsker continues his Public Policy Officer work as a liaison with the ACM US Technology Policy Committee (USTPC). His work includes participation in writing statements and reports, serving on panels providing information to legislative groups, and assisting with the production of AI-related ACM TechBriefs (<https://www.acm.org/public-policy/techbriefs>). He plans to renew sharing of public policy news through the SIGAI blog and convey opportunities for SIGAI members to be expert resources to policymakers. His recent selection as the new Chair of USTPC will provide additional opportunities to work with SIGAI members.

Job Fair

The ninth edition of the joint AAAI/ACM SIGAI job fair ran successfully in February 2023. After two years of fully virtual format, this year the job fair brought together over 21 companies, universities, and recruiters in person during the AAAI-23 conference in Washington DC. The goal of the job fair is connecting academics in various levels to employers from industry and academia as well as showcasing successful collaborations between members of the AI community and the industry.

We continued to maintain a dedicated domain for the fair <https://aaaijobfair.com/>, and we provided a link on that site for job-seekers to submit resumes or CVs, which were distributed among participating organizations prior to the event. Over 150 participants registered and shared their CVs/resumes with the recruiters and many more attended the in-person event. The job fair ran for two and half hours with many staying longer to continue the conversations. In the beginning of the event, one representative from each organization had the opportunity to introduce the organization and its job opening(s) for about two minutes. We

asked all companies to submit a single slide along with additional flyers about available positions or short video content about their organizations. The flyers and short videos were made accessible through AAAI/SIGAI webpage prior to the event; the slides were projected in the beginning of the event. Afterwards, students and professionals looking for internships or jobs had the opportunity to meet with the representatives from recruiting organizations in an informal "meet-and-greet" atmosphere. The participating employers were both from academic organizations and industry from all over the world (e.g. USA, Germany, Japan, China, and UAE).

We hope that all participants and recruiters of this job fair were able to fully utilize the opportunities provided in this in-person event. We would like to thank AAAI, in particular Chesley Grove and Meredith Ellison, for all their help in organizing the job fair and dealing with numerous last-minute requests. We encourage the community to reach us with any comments or suggestions that can help continue or improve these series.

Key Issues

We focus here on two big questions. There is continuing uncertainty in both the world of conferences and in the world of AI today. There has clearly been a resurgence of interest in attending in-person events; how does one balance that with concerns about exclusion (especially of the global south and of those with medical vulnerabilities in the wake of a pandemic), climate change, and even attention in an era of venue proliferation? One specific issue that has come up is about incentives for attendance when conferences offer hybrid participation options. Separately, the rise of Generative AI is changing the landscape of AI. The blinding focus on this area and topic has both opportunities and risks for those associated with AI more broadly, and we must think carefully about how best to engage across all the ways in which we try to serve our mission.





AI Policy Matters

Larry Medsker (The George Washington University; irm@gwu.edu)

DOI: [10.1145/3626487.3626490](https://doi.org/10.1145/3626487.3626490)

Abstract

AI Policy Matters is a regular column in *AI Matters* featuring summaries and commentary based on postings that appear in the *AI Matters* blog (<https://sigai.acm.org/aimatters/blog/>). We welcome everyone to make blog comments so we can develop a rich knowledge base of information and ideas representing the SIGAI members.

Update on the ACM Technology Policy Committee

SIGAI has links with [other policy and education groups](#), including Computing Research Association ([CRA](#)) and particularly the ACM US Technology Policy Committee ([USTPC](#)). AI has an expanding share of the technology policy area, and as the new Chair of USTPC I plan to report current resources and issues regularly through the *AI Matters* newsletter and blog. ACM and its USTPC are non-profit, non-lobbying, and entirely apolitical. The mission is simply to help policymakers and their staff, the science community, and the public understand the forms of computing technology so they can make technically informed decisions and recommendations. Recent and upcoming USTPC policy products on AI include

- * Generative AI
- * AI and Cybersecurity
- * Responsible AI
- * Human-Centered AI
- * Automated Vehicle Safety

Sample USTPC Products

Recent documents include

- 1 [Comments to White House OSTP on National AI Priorities](#), US Technology Policy Committee (July 7, 2023)

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- 2 [Joint Principles for the Development, Deployment, and Use of Generative AI Technologies](#), ACM TPC, Europe/US Technology Policy Committees (June 27, 2023)
- 3 [Statement on Principles for Responsible Algorithmic Systems](#), ACM TPC, Europe/US Technology Policy Committees (October 26, 2022)
- 4 [Comments to NIST on Update of the National Artificial Intelligence R&D Strategic Plan](#), US Technology Policy Committee (March 4, 2022)
- 5 [Statement on Facial Recognition Technologies](#), ACM US Technology Policy Committee (June 30, 2020)

TechBriefs

Another ACM policy resource is the [TechBrief series](#) of short technical bulletins that present scientifically-grounded perspectives on the impact of specific developments or applications of computing technology. Designed to complement ACM's computing activities in the policy arena, the primary goal is to inform on, rather than advocate for, specific policies. AI topics in recent and upcoming TechBriefs include AI and trust, media disinformation, smart cities, safer systems, and generative AI.

1 [Safer Algorithmic Systems](#)

Lead Author Ben Shneiderman

The ubiquity of algorithmic systems creates serious risks that are not currently being adequately addressed. A recurring theme of this TechBrief is that while AI is incredibly useful and generally benign, when deployed in complex systems algorithms can cause a variety of profound harms to individuals and to society, threatening opportunity, liberty, and even life itself. To that end, the TechBrief recommends that enabling safer algorithmic systems requires organizational human-centered safety cultures based on a high research and policy priority of governments and all stakeholders.

2 Facial Recognition

Lead Author Joshua A. Kroll

The focus is on policy issues raised by facial recognition and its use by governments and the private sector. Noting that “facial recognition use is increasing despite the technology’s fundamental limitations, creating profound privacy and ethical challenges,” the TechBrief covers the myriad problems with such technology including that facial recognition is not a single, dependable technology, the inherent dangers to personal privacy, the evidence that bias in facial recognition systems is pervasive and profound. Responsible application of facial recognition technology requires careful, scientifically informed, and ongoing governance.

3 Smart Cities

Lead Author Chris Hankin

This TechBrief focuses on the concept of Smart Cities and how to deploy information and communication technology (ICT) to create such cities without compromising either personal or societal freedoms. Concerns raised by such emerging tech include: cybersecurity risks at every stage of every smart city technology’s life cycle; effective privacy protection mechanisms as an essential component; transparency and fairness to all city users, not just residents; and understanding the climate impact of smart city infrastructures both during design and after deployment.

4 Upcoming TechBrief: Generative AI

Lead Authors David Leslie and Francesca Rossi

The rapid commercialization of Generative AI (GenAI) poses multiple large-scale risks to individuals, society, and the environment. The issues require rapid, international response to mitigate negative outcomes. Comprehensive and coherent guidelines are needed for the development and deployment of GenAI systems whose proliferation may create massive individual, societal, and socioeconomic risk. Swift but proportionate policy action is needed at local, national, and international levels to meet the challenges posed by the expanding scale and scope of GenAI-related risks. Wide disparities in the economic influence of GenAI on stakeholders have the potential, if not fully addressed by policymakers,

to amplify inequality and thwart innovation and competition.

AI Policy Matters

Future columns will feature emerging AI public policy issues, projects, and resources. We look forward to blog discussions on these important topics. ACM and USTPC always seek participation by the experts at SIGAI to help identify topics and draft documents on emerging issues, help brief policymakers, and participate in events like [HotTopics Webinars](#). I welcome your ideas in messages to medsker@acm.org and through participation in the [SIGAI Policy Blog](#).



Larry Medsker is a Research Professor at The George Washington University, where he was founding director of the Data Science graduate program. He is currently a faculty member in the

GW Human-Technology Collaboration Lab and Ph.D. [program](#). His research in AI includes work on artificial neural networks, hybrid intelligent systems, and the impacts of [AI on society and policy](#). He is Co-Editor-in-Chief for the [journal *AI and Ethics*](#), Public Policy Officer for the ACM SIGAI, and Chair of the ACM Technology Policy Committee.



Conference Reports

Louise A. Dennis (University of Manchester; louise.dennis@manchester.ac.uk)

DOI: [10.1145/3626487.3626491](https://doi.org/10.1145/3626487.3626491)

This section is compiled from reports of recent events sponsored or run in cooperation with ACM SIGAI. In general these reports were written and submitted by the conference organisers.

The 28th ACM Conference on Intelligent User Interfaces (IUI 2023)

Sydney, Australia, Mar 27-31, 2023

<https://iui.acm.org/2023/>

The venue for the IUI 23 conference was the Aerial University of Technology Sydney (UTS) Function Centre, located in central Sydney, Australia, and on the grounds of the UTS. The Aerial Function Centre provided a genuinely flexible space, with fully integrated catering services, and several presentation spaces. The venue was next door to the Central train station and part of a precinct that is home to the ABC, the Powerhouse Museum, TAFE Ultimo, the International Convention Centre (ICC), Darling Harbour and Chinatown. So, it was easy to travel to, and was surrounded by a number of tourist locations.

The conference was held between 27 and 31 March 2023, with tutorials, a doctoral consortium, and workshops on March 27th, and paper presentations from March 28th – 31st.

The main conference objective is to enable researchers from academia and industry to present their research in Intelligent User Interfaces and exchange ideas about the latest work in the space.

The theme for this year was Resilience, covering a wide variety of topics, such as COVID-19 recovery, organizational cyber resilience, economic growth and stability, climate change recovery, intelligent user interface resilience, and similar subjects. While we encouraged submissions related to this theme, the scope of the conference was not limited to the theme only.

As always, contributions to IUI were expected to be supported by rigorous evidence appro-

priate to the claims (e.g., user study, system evaluation, computational analysis). Contributions were welcome from all relevant arenas, including academia, industry, government, and non-profit organizations. We strongly believe that diverse insights are critical to the vitality of the IUI community and so the conference accepted papers for both long and short oral presentations.

The goal of the workshops was to provide a venue for presenting research on focused topics of interest and an informal forum to discuss research questions and challenges. Tutorials were designed to provide fundamental knowledge and experience on topics related to intelligent user interfaces, and the intersection between Human-Computer Interaction (HCI) and Artificial Intelligence (AI).

The audience was from all relevant arenas, including academia, industry, government, and non-profit organizations.

The Keynote speakers were:

Prof Joyce Chai - The University of Michigan, (Tuesday, March 28th). Pragmatic Communication with Embodied Agents. With the emergence of a new generation of embodied AI agents (e.g., cognitive robots), it has become increasingly important to empower these agents with the ability to learn and collaborate with humans through language communication. Despite recent advances, language communication in embodied AI still faces many challenges. Human language not only needs to ground to agents' perception and action but also needs to facilitate collaboration between humans and agents. To address these challenges, I will introduce several efforts in my lab that study pragmatic communication with embodied agents. I will talk about how language use is shaped by shared experience and knowledge (i.e., common ground) and how collaborative effort is important to mediate perceptual differences and handle exceptions. I will discuss task learning by following language instructions and highlight the need for neurosymbolic representations

for situation awareness and transparency. I will further present explicit modeling of partners' goals, beliefs, and abilities (i.e., theory of mind) and discuss its role in language communication for situated collaborative tasks.

Mark Sagar, CEO of Soul Machines, (Wednesday, March 29th). Breathing life into the Machine. This talk will give an overview of the advances in AI that have enabled the development of autonomous virtual characters with life like behaviours. Drawing from the research and development undertaken at Soul Machines, examples will be shown of virtual characters that recognize and respond to human emotion, learn human-like behaviours, and provide a realistic human face to computers interfaces. The research challenges for the next generation of digital humans will be outlined and examples of how they could transform human computer interaction.

Grace Chung - Head of Research, Google Australia, (Friday, March 31st). Recent Advances in AI from Google Brain. In 2022 Google Research Australia (GRA) was announced as part of the Digital Future initiative, a program aimed at contributing to a stronger digital future for Australians. GRA is a part of Google Brain, an arm of research that has significantly shaped the evolution of AI. In this talk I will explore the history of disruptive innovations within Google Brain, some of the exciting trends in Machine Learning and I will showcase some of the recent advances in generative AI and the use of AI for creativity.

Best Paper Award . Appropriate Reliance on AI Advice: Conceptualization and the Effect of Explanations, by Max Schemmer, Niklas Kuehl, Carina Benz, Andrea Bartos, and Gerhard Satzger

Best Paper Honorable Mention . Interacting with Next-Phrase Suggestions: How Suggestion Systems Aid and Influence the Cognitive Processes of Writing, by Advait Bhat, Saaket Agashe, Parth Oberoi, Niharika Mohile, Ravi Jangir, and Anirudha Joshi. ScatterShot: Interactive In-context Example Curation for Text Transformation, by Sherry Wu, Hua Shen, Daniel S Weld, Jeffrey Heer, and Marco Tulio Ribeiro

Best Poster Award . Matchmaking for Mental Well-being: Development of a Peer-

based Support System (Peer2S) for Students during COVID Lockdown, by Wan-Jou She, Kota Dangisho, Panote Siriaraya, Felix Dollack, and Shinsuke Nakajima

Best Poster Honorable Mention Fair and Robust Metric for Evaluating Touch-based Continuous Mobile Device Authentication, by Masashi Kudo, Tsubasa Takahashi, Shojiro Ushiyama, and Hayato Yamana. Using Redirection to Create a Swimming Experience in VR for the Sitting Position, by Chenyang Cai, Jian He, and Tianren Luo

Best Demonstration Award A User Interface for Explaining Machine Learning Model Explanations, by Md Abdul Kadir, Abdulrahman Mohamed Selim, Michael Barz, and Daniel Sonntag

Best Demonstration Honorable Mention . Interactive Fixation-to-AOI Mapping for Mobile Eye Tracking Data based on Few-Shot Image Classification, by Michael Barz, Omair Shahzad Bhatti, Hasan Md Tusfiqur Alam, Duy Minh Ho Nguyen, and Daniel Sonntag. The Programmer's Assistant User Experience, by Steven I. Ross, Stephanie Houde, Fernando Martinez, Michael Muller, and Justin D. Weisz

Proceedings can be found in the ACM digital library (<https://dl.acm.org/conference/iui>)

4th International Conference on Deep Learning Theory and Applications (DeLTA 2023)

Rome, Italy, July 13 to 14, 2023

<https://delta.scitevents.org>

DeLTA 2023 was held in Rome, Italy, from July 13 to 14, 2023. It was sponsored by the Institute for Systems and Technologies of Information, Control and Communication (INSTICC), and endorsed by International Association for Pattern Recognition. DeLTA 2023 was also organized in cooperation with the ACM Special Interest Group on Artificial Intelligence, International Neural Network Society, Società Italiana di Reti Neuroniche, and the European Society for Fuzzy Logic and Technology.

Deep Learning and Big Data Analytics are two major topics of data science, nowadays, and they were the focus of this conference. Big Data has become important in practice, as

many organizations have been collecting massive amounts of data that can contain useful information for business analysis and decisions, impacting existing and future technology. A key benefit of Deep Learning is the ability to process these data and extract high-level complex abstractions as data representations, making it a valuable tool for Big Data Analytics where raw data is largely unlabeled.

Machine-learning and artificial intelligence are pervasive in most real-world applications scenarios such as computer vision, information retrieval and summarization from structured and unstructured multimodal data sources, natural language understanding and translation, and many other application domains. Deep learning approaches, leveraging on big data, are outperforming state-of-the-art more “classical” supervised and unsupervised approaches, directly learning relevant features and data representations without requiring explicit domain knowledge or human feature engineering. These approaches are currently highly important in IoT applications.

DeLTA received 42 paper submissions from 20 countries. To evaluate each submission, a double-blind paper review was performed by the Program Committee. After a stringent selection process, 21.43% of the papers were published and presented as full papers, i.e. completed work (12 pages/25’ oral presentation).

In addition to the presentation sessions, DeLTA 2023 included outstanding keynote lectures, which are relevant to today’s lines of research and technical innovation. These talks were presented by internationally distinguished researchers, namely:

- Luís Paulo Reis, University of Porto, Portugal: Deep Reinforcement Learning to Improve Traditional Supervised Learning Methodologies
- Davide Bacciu, University of Pisa, Italy: Pervasive AI: (deep) Learning into the Wild

Additionally, a “Best Paper Award”, “Best Student Paper Award” and “Best Poster Award” were conferred during the conference. More information can be found at: <https://delta.scitevents.org/PreviousAwards.aspx>



Louise Dennis is the Conference Coordination Officer for ACM SIGAI, and a faculty member at the University of Manchester. Her research is in Verification of Autonomous Systems, Cognitive Agents and Machine Ethics. Contact her

at louise.dennis@manchester.ac.uk.
