

A summary Report
16th May 2024 workshop
AI AND SUSTAINABILITY: OUR PEOPLE-CENTRED
APPROACH

By
Arshdeep Singh
University of Surrey

Event Highlights: [A short summary of the event](#), Recorded Lecture Playlist: [Link](#)

[Workshop Program](#)



AI and Sustainability: Our People-Centred Approach

Organizers: Dr Arshdeep Singh*, Dr Erick Sperandio, Prof Mark Plumbley
Co-organizers: Dr Thomas Deacon, Gabriel Bibbó, Haohe Liu, James King

*Research Fellow in AI for Sound, CVSSP &
Sustainability Fellow, Co-lead in AI & Sustainability program, Institute
for Sustainability
University of Surrey
UKAN+ Early career Acoustic champion for AI
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AI AND SUSTAINABILITY: OUR PEOPLE-CENTRED APPROACH

Summarized by Dr Arshdeep Singh

Workshop Summary

A one-day hybrid workshop titled “AI and Sustainability: Our People-Centred Approach” was organized in the 32MS01 Rik Medik building at the University of Surrey, UK, from 9:30 am to 4:35 pm. The workshop aimed to explore (1) how AI is being used for sustainable applications with a people-centric approach, (2) the impact of AI models on the environment, (3) tools and methods to measure AI’s environmental impact, and (4) the importance the industry places on sustainability. The event was organized by Dr. Arshdeep Singh, Dr. Erick Sperandio, and Prof. Mark Plumbley.

The workshop featured eight talks by international and national speakers from industry, academia, and research institutes. Speakers included representatives from Microsoft AI for Good Lab, NVIDIA Corporation Singapore, The Alan Turing Institute London UK, University of Lorraine France, University of Oxford, University of Surrey and Christian Medical College (CMC) Vellore India. The workshop also included a networking session in the form of poster presentations during coffee/lunch breaks. These networking and poster presentation sessions were only available for in-person attendees. There was no registration fee for the workshop.

83 participants registered for the workshop, including organizers and speakers, with 44 attending in person and 39 online. On the day of the workshop, there were 30 in-person attendees and 23 online attendees (excluding organizers), resulting in a turnout of 64%. The workshop's total duration, excluding lunch/coffee breaks and networking sessions, was 5 hours and 42 minutes (38 minutes per session). The average duration for online attendees was 3 hours and 5 minutes, suggesting that they attended 4 to 5 sessions.

The workshop began with a welcome address delivered by Dr. Arshdeep Singh. The welcome address included the workshop's theme, motivation, and program schedule. Subsequently, the workshop had four sessions, chaired by Prof. Mark Plumbley, Dr. Erick Sperandio, and Dr. Arshdeep Singh.

The first session featured talks from Dr. Girmaw Abebe Tadesse from Microsoft AI for Good Lab and Prof. Alex Rogers from the University of Oxford. Dr Girmaw shared key AI-for-good practices to enhance the sustainability of AI, emphasizing partnership, clarity of the problem, impact on end-users, and availability of resources. Prof Alex discussed leveraging AI for sustainable energy use, describing an ongoing project called GridCarbon, which tracks the changing carbon intensity of the UK electricity grid. Various

use cases of AI were presented, focusing on monitoring and optimizing energy use within UK homes and businesses.

The second session featured Jeff Adie from NVIDIA Corporation, Dr. Erick Sperandio from the University of Surrey, and Dr. Jill Juergensen from the University of Surrey. Jeff discussed improving the sustainability of climate and weather predictions using AI. He emphasized that the future under climate change will be harsh and that today's climate prediction models are of low resolution. High-resolution models provide good predictions but require long runs on very large supercomputers. AI and accelerated GPU support could help predict and model climate and weather in a sustainable fashion. Dr Erick explained Surrey's contribution towards AI and sustainability through a pan-university concept of collaborating across disciplines, domains, and institutes. Dr Jill presented a business perspective on AI and sustainability with her talk titled "Business as Usual" or "Brave New World"? Unlocking the Power of AI for Sustainability.

The third session, held after lunch, featured talks by Dr Hannah Mary Thomas T from CMC Vellore, India, and Prof. Romain Serizel from the University of Lorraine, France. Dr Hannah discussed the sociotechnical aspects of AI in healthcare, including challenges, opportunities, and pipelines followed to contribute to sustainable solutions. Prof. Romain presented issues in measuring energy consumption and CO2 emissions by AI models designed for machine listening.

In the final session, there were joint talks by Dr Nitish Mital and Dr Daniel Mannion from The Alan Turing Institute, followed by a panel discussion on AI & Sustainability Research Priorities, Challenges, and Opportunities. Dr Nitish focused on AI and sustainability within edge computing, communication, and data efficiency by generating synthetic data for robust AI. Dr. Daniel discussed computational and hardware efficiency using neuromorphic computing.

The panel discussion was chaired by Prof. Mark Plumbley, with panel members including Prof. Alex Rogers, Prof. Romain Serizel, Dr. Jill Juergensen, and Dr. Erick Sperandio. Key points included the importance of multidisciplinary research, pan-university institutions, long-term collaboration among AI researchers and sustainable development researchers, making sustainability comprehensible and comfortable for people, and the necessity for lawmakers, social scientists, and technologists to work together. Open-source knowledge sharing is crucial to understand large AI models and reduce misinformation spread for marketing and funding purposes.

In the end, some participants joined for social activities at the Wates House

Next steps – Outcomes

The resources: video presentations will be made available online to share insights with a wider audience.

The discussions during the event suggested future focus areas to promote AI and sustainable development. These include responsible AI, open research, sustainability of AI, decarbonizing AI models, public awareness, using AI to improve energy efficiency, and multidisciplinary events including stakeholders, law and regulation experts, computer scientists, and social scientists.

User feedback and material used to prepare the workshop will be used to improve future events organized at the University of Surrey.

Online resources

Highlights: [A short summary of the event](#)

Video Lecture and event Playlist: [Link](#)

[LinkedIn post link](#)

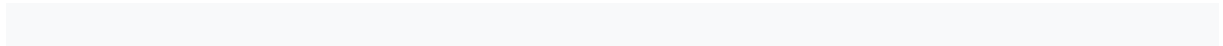
Quotes from participants

- Learnt about new dimensions of sustainability. My prior understanding was limited to just the environmental component of sustainability.
- I liked the variety of speakers. It worked well as a hybrid event
- I had the opportunity to present a poster on my latest research, which not only allowed me to share my findings but also opened the door for insightful interactions with the audience. Engaging with other participants helped me gain diverse perspectives on the intersection of AI and sustainability. Their questions and feedback were invaluable, providing me with new ideas and considerations for my future work.
- Be good to see more people attending from diverse disciplines especially in the audience to get a range of views in Q&A

Acknowledgments

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Event Pictures







