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WHY FOUNDATIONAL AI MATTERS!

SIMON LUCEY

Simon Lucey, Ph.D., is the Director of the Australian Institute for Machine Learning (AIML) at the University of Adelaide, the nation's largest machine learning research group.



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12:30 - 2 PM

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Australian Academy of
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WHY FOUNDATIONAL AI MATTERS!

Artificial intelligence (AI) is one of the defining technologies of the 21st century, promising significant benefits for economies and societies. Deep neural networks, like those in Open AI's ChatGPT, now form the backbone of all modern AI. However, despite AI becoming more common, its core principles are still poorly understood; it remains prone to bias and hallucinations; and it demands enormous amounts of energy, data, and computational power. In this talk, I will argue that gaining a better understanding of the foundational aspects of modern AI offers a cost-effective way for Australia to take a leading role. The study of Foundational AI aims to develop methods that are less reliant on big data and high power consumption. The advancements expected from this research are crucial, as companies and governments worldwide race to reduce emissions while expanding the capabilities of next-generation AI. Investing strategically in Foundational AI will also strengthen Australia's capacity for unique sovereign AI capabilities—an essential factor as our country approaches the mid-21st century.

SIMON LUCEY

Simon Lucey, Ph.D., is the Director of the Australian Institute for Machine Learning (AIML) at the University of Adelaide, the nation's largest machine learning research group. AIML has secured more than \$100 million in funding during his directorship. Professor Lucey previously held key positions at Carnegie Mellon University's Robotics Institute, the autonomous vehicle company Argo AI, and CSIRO. He is a scientific advisor on the Temporary AI Expert Committee for the Department of Industry, Science and Resources.

Professor Lucey has received numerous career awards, including the 2024 AmCham Alliance Award for artificial intelligence and an Australian Research Council Future Fellowship. With 11 patents in computer vision, over 300 publications, more than 21,500 citations, and an h-index of 63, his contributions to the field are widely recognised.

His research focuses on computer vision, machine learning, and robotics, drawing inspiration from pioneering AI researchers to uncover computational and mathematical models underlying visual perception.