

## NITheCS COLLOQUIUM: From So Simple A Beginning: Understanding Large Language Models

Prof Sir Nigel Shadbolt FRS FREng FBCS  
(Jesus College Oxford and University of Oxford, UK)

Wednesday, 10 April 2024 | 16h00 – 17h00 SAST  
Venues: Neelsie Cinema @ Stellenbosch University, and online

### ABSTRACT

Artificial intelligence has a decades-long history that exhibits alternating enthusiasm and disillusionment for the field's scientific insights, technical accomplishments, and socioeconomic impact. Recent achievements have seen renewed claims for the transformative and disruptive effects of AI. Reviewing the history and current state of the art reveals a broad repertoire of methods and techniques developed by AI researchers. In particular, modern machine learning methods have enabled a series of AI systems to achieve superhuman performance. The exponential increases in computing power, open-source software, available data, and embedded services have been crucial to this success. At the same time, there is growing unease around whether the behaviour of these systems can be rendered transparent, explainable, unbiased, and accountable. This lecture will review the emergence of modern machine learning methods, together with the opportunities and challenges they present.

### BIOGRAPHY

Prof Sir Nigel Shadbolt is a leading researcher in Artificial Intelligence (AI). He is Principal of Jesus College Oxford and a Professor of Computing Science at the University of Oxford. He is chairman of the Open Data Institute which he co-founded with Sir Tim Berners-Lee. In 2009 he was appointed Information Advisor by the UK Prime Minister and, working with Sir Tim Berners-Lee, oversaw Open Data releases across the public sector. He was knighted in 2013 for 'services to science and engineering'.

Sir Nigel has been working in AI for over four decades, having obtained his PhD from the University of Edinburgh's Department of Artificial Intelligence in 1984. His first tenured faculty position was in the Department of Psychology at the University of Nottingham where he established and led a vibrant AI group. He moved to Southampton's School of Electronics and Computer Science in 2000. At Southampton he researched the next generation of the World Wide Web and was the first Head of the Web and Internet Science Group. At Oxford he has focused his research on human centred AI in a wide range of applications. Most recently he was asked to lead the setting up of the Oxford Institute of Ethics in AI. He has spent the first part of 2024 as the Donald Gordon Fellow at STIAS.

With over 500 publications, he has researched and published on topics ranging from cognitive psychology to computational neuroscience, Artificial Intelligence to the Semantic Web. In 2018 he published *The Digital Ape: how to live (in peace) with smart machines*, described as a 'landmark book'.

He is a Fellow of The Royal Society, the Royal Academy of Engineering, and the British Computer Society.



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