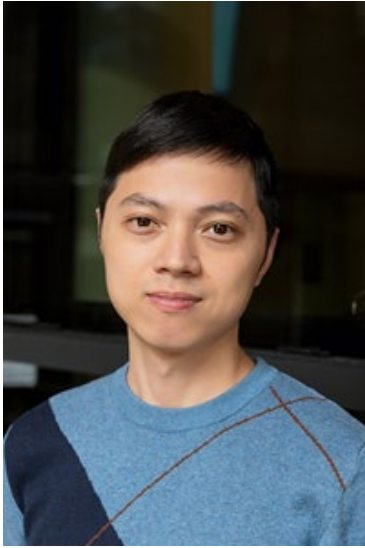


Optical Computing for Energy-Efficient AI: From Research to Commercialization



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Abstract

As AI models continue to scale, their energy demands have become a critical bottleneck - both economically and environmentally. In this talk, I will present the work we've carried out at University of Oxford and Lumai over the past few years, focusing on how optical computing can fundamentally reshape the energy-efficiency landscape of AI. I will cover the key research milestones that underpin our technology, from end-to-end optical training to large-scale optical inference, and discuss how we are translating these advances into practical, scalable hardware. Finally, I'll share insights into the commercial applications we're targeting and the challenges of bridging deep tech research with market-ready solutions.

Bio

Dr. Xianxin Guo is the CEO and co-founder of Lumai, an Oxford University spinout pioneering next-generation optical computing technologies. He earned his PhD in physics from the Hong Kong University of Science and Technology in 2018 (under supervision of Prof. Shengwang Du), and went on to become an RCE 1851 Research Fellow at the University of Oxford and a Stipendiary Lecturer at Keble College. With over a decade of international experience in quantum optics and optical computing, he has played a key role in securing more than £10 million in funding to advance Lumai's mission of commercialising optical computing.

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