Shocklab Seminar Series

Coordination as inference: An Active Inference approach to Multi-Agent Systems

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SAVE THE DATE

4 JUNE 2025

3 pm - 4 pm (GMT+2)

Venue: M209, Mathematics Building, UCT

Online link:
https://zoomto.me/FwF7K

ABSTRACT

Current multi-agent systems struggle with coordination in complex environments where decentralised decision making often leads to unstable and inefficient cooperation. This talk will discuss Active Inference - a Bayesian framework grounded in neuroscience - as a principled solution to these core challenges, unifying them under the paradigm of uncertainty minimisation. Through this formalisation we aim to address how agents balance exploration and exploitation in social contexts to resolve conflicts, infer intentions and achieve consensus without centralised control. By redefining multi-agent system design in principles from neuroscience and Bayesian decision making, active inference provides a unique solution for adaptive systems in robotics, distributed AI and human-AI collaboration.

SPEAKER BIO

Kival is interested in artificial intelligence with a focus on intelligent decision-making systems and multi-agent interactions. His Honours was focused on Reinforcement Learning in cooperative multi-agent environments. He is currently doing his Masters working with Active Inference to create more socially aware artificial agents.

For more information **shocklab@stjohngrimbly.com**