

Chen Institute Symposium 2023

Speaker: Tom Griffiths

Talk title: The rational use of cognitive resources

Abstract: Psychologists and computer scientists have very different views of the mind. Psychologists tell us that humans are error-prone, using simple heuristics that result in systematic biases. Computer scientists view human intelligence as aspirational, trying to capture it in artificial intelligence systems. How can we reconcile these two perspectives? In this talk, I will argue that we can do so by reconsidering how we think about rational action. Psychologists have long used the standard of rationality from economics, which focuses on choosing the best action without considering the computational difficulty of that choice. By using a standard of rationality inspired by computer science, in which the quality of the outcome trades off with the amount of computation involved, we obtain new models of human behavior that can help us understand the cognitive strategies that people adopt. I will present examples of this approach in the context of human decision-making and planning, including complex planning problems such as the game of chess.