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Brain-inspired Cognitive Architectures for Robotics

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Building control systems for autonomous robots that incorporate models of the neural systems can create opportunities for technological innovation whilst illuminating the organisation of the brain and mind. The functional organization of the brain can be understood as forming a layered control architecture. However, how this architecture co-ordinates perception and action and enables adaptive behaviour remains amongst the most challenging questions in science. The talk will be illustrated by biomimetic robotics research from our group exploring the role of layered cognitive architectures in three contexts—active touch sensing, decision-making and motivation, and the emergence of the sense of self.