LKYCIC Seminar Series

Reciprocal Mind–Environment Construction In The Human Neurodevelopmental Niche

DATE AND TIME	ASST PROF RYUTARO UCHIYAMA	VENUE
26 Mar 2025, 1 - 2 pm	Assistant Professor, Humanities, Arts and Social Sciences (HASS), Singapore University of Technology and Design (SUTD)	Lecture Theatre 3 Building 2, Level 4 (2.403)

SYNOPSIS - In real behavioural ecologies, adaptive learning requires simultaneous exploration of both motor control ("policy") and environmental task structure ("world model"), each posing its own form of search complexity. These dual domains of ecological exploration match the functional partition described in recent proposals of a two-part computational architecture of prefrontal cortex, but they have rarely been studied jointly. Dual motor–environment exploration is particularly important for understanding humans. Our species occupies a "design niche" in which we shape our own environments, which then shape behavioural learning trajectories, thereby engendering reciprocal feedback between psychological and environmental construction. I describe how this framework parsimoniously explains the causal link between a number of putatively species-unique features of human behaviour, such as motor imitation, open-ended behavioural flexibility, and aesthetic production, with implications for urban environmental design.

ASST PROF RYUTARO UCHIYAMA
Assistant Professor, Humanities, Arts and Social Sciences (HASS), SUTD

ASST PROF RYUTARO UCHIYAMA is an interdisciplinary behavioural scientist whose work bridges human evolutionary biology, computational neuroscience, and cultural psychology. He is Assistant Professor in the Humanities, Arts and Social Sciences (HASS) cluster at SUTD and is currently preparing the launch of the Human Cognitive Ecology Lab. Previously, Ryutaro conducted postdoctoral research at the Tübingen AI Centre in Germany and in a joint position between NTU and Cambridge University's CARES. He obtained his PhD from the London School of Economics and an MA from Cornell University. In a previous life, he worked in the creative sector and trained as a spatial designer in Tokyo, Japan.

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