中央研究院統計科學研究所
學 術 演 講

講 題：Decoding Movement: A Data-Driven Exploration of Sensorimotor Network Dynamics

演 講 人：Dr. Yu-Wei Wu（吳玉威 助研究員）
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時 間：2025-05-12（Mon.）10:30-12:00

地 點：Auditorium, B1F, Institute of Statistical Science；The tea reception will be held at 10:10.

備 註：Online live streaming through Cisco Webex will be available.

Abstract

How does the brain orchestrate a complex sequence of actions—like reaching for a cell phone and adjusting grip in real time? To explore this question, we combined large-scale neural recordings from motor (M1), premotor (M2), and somatosensory (S1) cortices of mice during a reach-and-grasp task. Crucially, we focused on extracting latent neural factors that govern movement execution, planning, and feedback control at single-trial resolution. Leveraging an assumption-free modeling framework, we uncovered how these latent factors interact dynamically across the full time course of the movement, distinguishing between successful and failed attempts. Our results not only illuminate fine-grained population-level coordination among sensorimotor regions but also offer new insights into how each cortical area contributes to rapid motor adjustments. By revealing these latent interactions, this work highlights the potential for advanced statistical approaches in understanding and predicting complex brain‐behavior relationships.

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