

Field:

Medical/Neuroscience

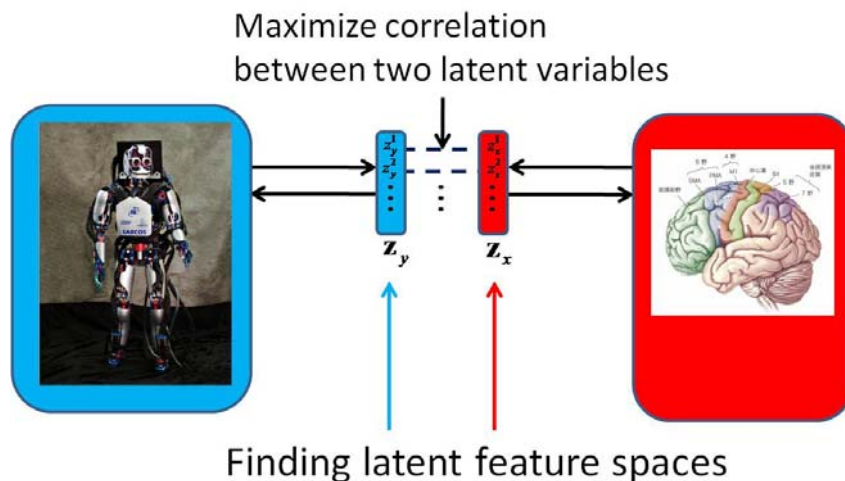
Session Topic:

Modeling Brain Circuits, Brain/Machine Interface - Learning

Speaker:

Jun MORIMOTO,

In this talk, we introduce our approach to understand sensory-motor mechanisms in our brain. Recent advance of the multi-unit recording system allows us to simultaneously record monkey's neural activities from many neurons with capturing monkey's movements. In our approach, we try to extract low-dimensional features shared by the recorded neural activities and the captured movements using canonical correlation analysis (CCA)[1]. We discuss how the extracted low-dimensional common representation can be useful to construct a brain-robot interface (BRI), i.e., the interface to connect the brain to a robotic device[2].



References

1. Hotelling, H., Relations between two sets of variants. *Biometrika*, 28, 321-377, 1936.
2. Morimoto, J, Endo, G. Nakanishi, J, and Cheng, G, A Biologically Inspired Biped Locomotion Strategy for Humanoid Robots: Modulation of Sinusoidal Patterns by a Coupled Oscillator Model, *IEEE Transaction on Robotics*, Volume 24, Issue 1, pages 185-191, 2008.