

NIPS Mini-Workshop

“Neural Decoding and Brain-Computer Interfaces”

Date; July 1 (Mon), 2013

Place; Conference Room at NIPS 1F

Organizers; Tadashi Isa (NIPS), Yukio Nishimura (NIPS), Hidenori Watanabe (NIPS), Tatsuya Umeda (Yokohama City Univ.)

Program

10:00-10:10 **Opening remark**
Tadashi Isa (NIPS)

Session 1 “Decoding”

10:10-10:40 **Sparse Bayesian inference methods for decoding 3D reach and grasp kinematics and joint angles with primary motor cortical ensembles**

Kazutaka Takahashi, University of Chicago, USA

10:40-11:10 **A novel tool for understanding motor and cognitive functions**
Notaka Fujii, RIKEN BSI, Wako, Japan

11:10-11:20 **Coffee break**

Session 2 “Motor decoding and neuroprosthesis”

11:20-11:50 **TBA**
Justin Sanchez, University of Miami, USA

11:50-12:20 **Brain Machine Interface based on musculo-skeletal model**
Yasuharu Koike, Tokyo Institute of Technology, Japan

12:20-13:30 **Lunch**

Session 3 “Somatosensory decoding”

13:30-14:00 **Sensory feedback interfaces in the dorsal root ganglia**
Douglas Weber, University of Pittsburgh, USA

14:00-14:30 **Encoding the forelimb joint kinematics by the dorsal root ganglion neurons in monkeys**
Tatsuya Umeda, Yokohama City University, Japan

14:30-15:00 **Sensory Responses in the Motor Cortex and their implications for Brain-Machine Interfaces**

Aaron Suminski, University of Chicago, USA

15:00-15:20 **Coffee break**

Session 4 “Closed loop BCI”

15:20-15:50 **Restoring Volitional Control via Artificial neural connection**

Yukio Nishimura, NIPS, Japan

15:50-16:20 **Physiological mechanism of deep brain stimulation**

Atsushi Nambu, NIPS, Japan

16:20-16:30 **Coffee break**

Session 5 “Clinical application”

16:30-17:00 **Brain machine interfaces using human electrocorticograms**

Masayuki Hirata, Osaka University, Japan

17:00-17:30 **Decoding sensorimotor cortex excitability using scalp electroencephalogram in humans**

Junichi Ushiba, Keio University, Japan

17:30-17:40 Closing remark

Yukio Nishimura (NIPS)

18:00-20:00 **Reception**