



BLUMENBACH LECTURE

LECTURE SERIES OF THE
JOHANN-FRIEDRICH-BLUMENBACH-INSTITUTE
FOR ZOOLOGY AND ANTHROPOLOGY

THOUGHT TO ACTION

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To explore how intentions may be used for neural prosthetic applications, we have implanted microelectrode arrays in a high-level cortical area, the posterior parietal cortex (PPC), in human tetraplegics. We find that human PPC is very high dimensional, coding a variety of variables including movements of both hands and both shoulders, observed actions, cognitive strategies, and memory-based decisions. This high dimensional coding is an advantage for neural prosthetics as a great deal of information can be read out from a single array in PPC. Tetraplegic patients cannot feel their bodies below the level of injury. To provide back somatosensation, in one tetraplegic participant we have intracortically microstimulated the primary somatosensory cortex with small electrical currents through microelectrode arrays. The participant reported natural quality cutaneous and proprioceptive sensations: promising results for allowing natural-seeming somatosensory feedback for more dexterous brain-control of robotic limbs.

LECTURE HALL
DEUTSCHES PRIMATENZENTRUM
KELLNERWEG 4

HOST
DEPT. PRIMATE NEUROBIOLOGY

Wednesday,
May 22nd 2019
16:15

GEORG-AUGUST-UNIVERSITÄT
GÖTTINGEN



Deutsches Primatenzentrum