Translational functional neuroimaging: from animal models to humans and back again

Organizers:
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Researchers that traditionally work with human subjects, especially patient populations, have been begun to back-translate their work to animal models in order to better understand the neurophysiological sources of the alterations observed with common neuroimaging techniques like fMRI or functional connectivity. This symposium describes the advantages and challenges of translational and backtranslational research, showcases some of the tools available for the work, and gives examples of successful translational and backtranslational experiments. MRI-based neuroimaging methods are ideal translational tools, as their noninvasive nature and adaptable spatial resolution allows very similar high quality data to be obtained in both humans and small animals. We hope that the talks will encourage greater exploitation of the manipulations available in animal models to better understand the alterations in brain activity and connectivity that are often observed in neurological and psychiatric disorders.

Symposia Schedule:

14:45-15:00
Motivation for translational and backtranslational imaging
Shella Keilholz, Emory/Georgia Tech, Atlanta, GA, United States

15:00-15:15
Circuit dissection of fMRI signals
Yen-Yu Ian Shih, University of North Carolina, Chapel Hill, NC, United States

15:15-15:30
Connectivity as biomarker to understand disease progression and treatment response in transgenic models of Huntington's disease
Kai-hsiang Chuang, University of Queensland, Brisbane, Australia

15:30-15:45
Forward- and backward-translation between animal and human fMRI studies in drug addiction
Yihong Yang, NIH, Baltimore, MD, United States

15:45-16:00
Questions and Answers