Neuroimaging Meta-Analysis

Organizers:
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Functional neuroimaging has provided a wealth of information on the cerebral localization of mental functions. In spite of its success, however, several limitations restrict the amount of knowledge that may be gained from each individual experiment. These include a usually rather small sample size, limited reliability of an indirect signal like BOLD fMRI and the need to base inference on relative contrasts between conditions. Such limitations have raised some concerns on the interpretability and

Learning objectives:
Having completed this course, participants will better understand:
1. The conceptual and technical foundations of neuroimaging meta-analyses
2. The main software tools and resources available to the community
3. Methods for data-mining and the meta-analytic investigation of brain networks
4. The potential contribution of these approaches to understand brain organization

Target audience:
Imaging researchers interested in databases, meta-analyses and functional atlasing of the brain as well as cognitive psychologists who wish to learn about emerging computational approaches to understanding mental functions. While some background in neuroimaging will be helpful, this course does introduce all basic concepts and approaches and focus on providing instructive examples on how to conduct actual meta-analyses.
Course Schedule:
13:00-13:10
Overview: Foundations and potential of meta-analyses
Peter Fox, Research Imaging Institute, San Antonio, TX, United States

13:10-13:40
How to plan and prepare a meta-analysis
Claudia Rottschy, Department of Neurology, University Hospital Aachen

13:40-14:05
Overview on Meta-Analysis methods
Tom Nichols, University of Warwick, Dept. of Statistics, Coventry, United Kingdom

14:05-14:30
ALE and BrainMap
Angela Laird, Florida International University, Miami, FL, USA

14:30-15:00
MKDA and Neurosynth
Tor Wager, Department of Psychology and Neuroscience, University of Colorado at Boulder, Boulder, CO, USA

15:00-15:30
Break

15:30-15:55
Co-activation mapping and parcellation
Simon Eickhoff, Institute of Clinical Neuroscience and Medical Psychology, Heinrich Heine University, Duesseldorf, Germany

15:55-16:20
Sources of whole-brain image data for mega-analyses
Jessica Turner, Georgia State University, Atlanta, GA, USA

16:20-16:45
Inferring mental states from imaging data: OpenfMRI and the Cognitive Atlas
Russ Poldrack, UT Austin, Austin, TX, USA

16:45-17:00
Questions and Discussion