

8:00 – 9:15 **Morning Workshops**

The Measurement and Enhancement of fMRI Reliability

Chair: Lee Friedman, functionalimageanalysis.com, Newbury, OH, USA

There has been much debate around the question: Is fMRI reliable? Although many published studies profess to document reliability, it is unclear how many studies with low reliability never get published. There is great variability in the methods employed to assess reliability in the fMRI literature, but little attention to the long history of thought given to the issue of measurement reliability by statisticians for the last 50 years. In this symposium, we will discuss our various views on the proper assessment of reliability. Once measured, the question then becomes: How do we enhance reliability? The history of efforts to enhance reliability for fMRI will be reviewed, and several successful examples will be presented in detail. The reliability of several physiological measures (BOLD, rCBF, CMRO₂, etc...) will be compared. Measurement reliability is obviously central to the further application of this modality to cognitive science and clinical evaluation. Presenting the diverse views of these investigators in a workshop format should provide an overview of current thought in this area.

Learning Objectives: Having completed this workshop, participants will be able to:

- Understand several options for measuring reliability, with emphasis on intraclass correlation coefficients
- Understand the extant literature on efforts to enhance reliability
- Be familiar with several specific successful examples of reliability enhancement
- Be informed on the reliability of several different physiological measures and mechanisms (BOLD, CBF, CMRO₂, etc...)

Measuring and Improving Reliability

Lee Friedman, functionalimageanalysis.com, Newbury, OH, USA

Garbage In, Garbage Out - Reflections on Efficient Pre-Processing and Diagnostic Strategies for Studies of Reliability in fMRI

David McGonigle, Schools of Psychology/Biosciences, Cardiff University, Cardiff, Wales, UK

A Comparison between the Reproducibility of BOLD, CBF, CMR02 and Related Physiological Parameters Using Calibrated BOLD

Beau Ances, UCSD Department of Neuroscience, La Jolla, CA, USA

Factors for Better Reproducibility across fMRI Studies and Multi-Centric Perspectives

Jean-Baptiste Poline, Neurospin, I2BM, CEA, France