Dec. 14-18, 2009 Dept. of Physical Medicine & Rehabilitation Baylor College of Medicine

SPM8 for Basic and Clinical Investigators

Content and Goals: This workshop is designed to provide an introduction to clinical structural and functional neuroimaging methods using SPM8. The lectures will focus on the fundamentals of task design, preprocessing, statistical modeling, artifact detection, and visualization of data associated with fMRI experimental designs of the type routinely used in clinical neuroimaging research. Special emphasis will be given to the problems associated with developing the complex statistical models used in experimental clinical neuroimaging. Lectures will be linked with a series of hands-on data analysis exercises that will provide participants with experience using SPM8 and MRIcron to combine structural and functional neuroimaging data in the service of detecting differential patterns of task-related activity. Participant prerequisites include an introductory statistics course including regression. Students are expected to bring a computer with MATLAB, SPM8 and MRIcron software to use during the workshop.

Details: The first four days nominally run from 9:00am to 5:30pm, but please arrive early on the first day (8:00-8:30am) unless you are certain that your laptop's version of SPM8 and Matlab are working in the classroom. Morning periods are 9am - 12:00pm; afternoon periods are 1:30pm - 4:30pm, with time at the end of each day for group and individual discussions. The morning and afternoon periods include one break; there is a 90 minute lunch scheduled (although it is sometimes shorter in practice, due to questions and discussion). The last day ends officially at 3pm. Fees are: $1500 for the week; $1000 for graduate and undergraduate students. (Members of the Cognitive Neuroscience Laboratory of Baylor College of Medicine should request reduced when they register.)

Broad Outline of Topics and Schedule:

Day	Morning	Afternoon
1	**Introduction to the Workshop and Analysis of a Single Subject**	
2	**SPM8 Overview**	**Preprocessing**
3	**Quality Control in Data Acquisition**	**1st-level: Design and Analysis**
4	**2nd-level: Single Group Analysis**	**2nd-level: Multiple Group Analysis**
5	**Visualization Tools**	**Structural Neuroimaging**

Faculty: For this program, the faculty will be Thomas A. Zeffiro, M.D., Ph.D. & Robert L. Savoy, Ph.D.

Dates: December 14-18, 2009. **Venue**: Baylor College of Medicine, Houston, Texas

Registration: Contact Robert Savoy <Robert.L.Savoy@alum.mit.edu>

Note for Registration: Please include the code "SPM8_Houston" somewhere in your subject line.

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Program Schedule in Detail

Day	Morning	Afternoon
1	**Introduction to the Workshop and Analysis of a Single Subject** The Workshop The Matlab Environment The SPM8 Environment Preprocessing Defining the Model Computing the Estimates Inference Visualization of Results ***Hands on Exercises (in Bold Italics): SPM8 Analysis of a Single Subject***	
2	**SPM8 Overview** New Features in SPM8 SPM Architecture in Depth SPM8 for PET, MEG/EEG, and VBM The Batch Editor ***Working with the Batch Editor***	**Preprocessing** Why preprocessing is essential? Slice time correction Realignment Unwarping Spatial filtering Spatial normalization and brain coordinates ***Creating batch file for Preprocessing***
3	**Quality Control in Data Acquisition** Optimal fMRI data acquisition Sources of artifacts in EPI Detection and repair of EPI artifacts ART demonstration ***Working with ART***	**First-level Design and Analysis** Experimental design types Statistical modeling in SPM8 Modeling with single subject covariates First-level fMRI design and analysis ***Batch file for 1st-level processing***
4	**2nd-level: Single Group Analysis** Single group example Covariates at the second-level Visualization at the second-level Critical threshold determination ***Creating batch file for a single group***	**2nd-level: Multiple Group Analysis** What is the “second” level? Multiple subjects; Multiple groups Anatomical localization and labeling Critical threshold determination ***Batch file for multiple groups***
5	**Visualization tools in depth** Visualization within SPM8 Visualization using MRIcron Visualization using xjview Visualization using FreeSurfer and FreeView ***Using the visualization tools***	**Structural Neuroimaging** Voxel-based morphometry Surface-based morphometry Region of interest morphometry Anatomical localization and labeling ***Creating a batch file for VBM***

Payment information for SPM8_Houston (December 14-18, 2009)

Fees may be paid by **check**, **credit card**, **automated clearlng house (ACH)**, or **electronic funds transfer (EFT)**.

In all cases, please include your name and the code word SPM8_Houston

IF YOU HAVE ANY QUESTIONS: please contact Robert Savoy <Robert.L.Savoy@alum.mit.edu>

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You will need some or all of the information in **bold** below, to arrange for payment via wire to HyperVision, Inc. If possible, include the code for the program in the comment or "other" area: SPM8_Houston, as well as the participant name, or send that information in an e-mail separately.

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