

March 1-5, 2010

Martinis Center for Biomedical Imaging

Charlestown, MA

SPM8 for Basic and Clinical Investigators

Note: for most uptodate program description, see: <http://www.neurometrika.org/node/154>

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.

Knowledge Prerequisites: Participants are expected to come to the workshop with a reasonably solid knowledge of functional MRI as an experimental tool, and the basic ideas of analysis and statistics. Various concepts within that knowledge base will be briefly reviewed in the context of demonstrating how they are used during fmri data analysis in SPM8.

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 lecture periods are 9am - 12:00pm; afternoon lecture 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. Fees are: \$1500 for the week; \$1000 for graduate and undergraduate students. (Registration fee for any member of the Athinoula A. Martinos Center for Biomedical Imaging is \$750.)

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., and Susan Whitfield-Gabrieli, Ph.D.

Dates: March 1-5, 2010.

Venue: Martinos Center for Biomedical Imaging, Charlestown, MA

Registration: Contact Robert Savoy <Robert.L.Savoy@alum.mit.edu>. Please include the code "SPM8_Mar_2010" somewhere in your subject line.

SPM8 for Basic and Clinical Investigators

Program Schedule in Detail

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

Payment information for SPM8_Mar_2010 (March 1-5, 2010)

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

In all cases, please include your name and the code word SPM8_Mar_2010

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

TO PAY BY CHECK:

Please make check payable to: **HyperVision, Inc.**

Please include (on the check or separately)

YOUR NAME

YOUR EMAIL ADDRESS

NAME OF THE PROGRAM FOR WHICH YOU ARE REGISTERED: SPM8_Mar_2010

Mail payment to: **HyperVision, Inc.**
US P.O. Box # 158
Lexington, MA 02420

TO PAY BY CREDIT CARD:

Please fax your credit card information to: **HyperVision, Inc.**

Fax Number: 781.862.5559

Your fax should include the following information:

YOUR NAME

YOUR EMAIL ADDRESS

NAME OF THE PROGRAM FOR WHICH YOU ARE REGISTERED: SPM8_Mar_2010

Name on the Credit Card

Credit Card Number

Expiration Date

Amount Being Paid (in US Dollars)

Cardholder's Signature

TO PAY BY WIRE TRANSFER (ACH or EFT):

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_Mar_2010, as well as the participant name, or send that information in an e-mail separately.

Name of Bank: **Citizen's Bank**

Name of Account: **HyperVision, Inc.**

Account Number: **1131357873**

Wire Routing Number: **011500120**

ACH Routing Number: **211070175**

SWIFT code for the bank: **CTZIUS33**

Address of Bank: **Citizen's Bank**
1 Citizens Drive
Riverside, RI 02915
USA