

Harvard NeuroDiscovery Center

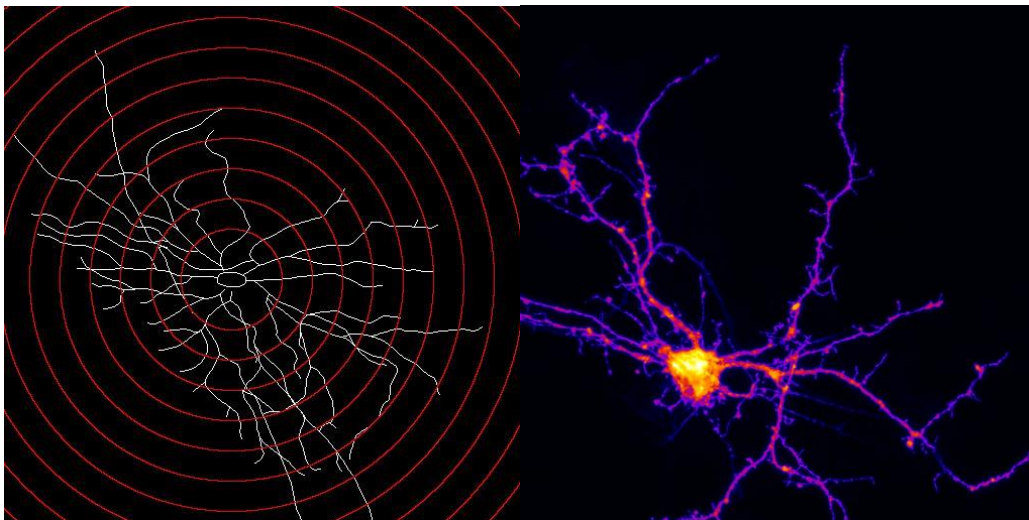
COLLABORATING TO CURE
NEUROLOGIC AND PSYCHIATRIC DISEASE



Enhanced Neuroimaging Core

Digital Image Analysis with ImageJ

April 14th – April 16th 2014



This intensive 3-day workshop taught by Dr. Lai Ding, manager of the Harvard NeuroDiscovery Center Enhanced Neuroimaging Core, introduces ImageJ, its basic functions, and its macro programming capabilities. Using real imaging projects performed at the Harvard NeuroDiscovery Center's Enhanced Neuroimaging Core, Dr. Ding will demonstrate common image analysis tasks such as basic image processing, stack alignment, cell counting and measurement. Macro writing will be covered to demonstrate how to automate a series of ImageJ commands, to process massive datasets automatically and to store results as desired.

The workshop is broken down into three sessions. Interested participants can sign up for one or more sessions depending on their interest and experience. See tentative schedule below.

Program Schedule:

Session I (April 14th) **ImageJ for beginners**: basic ImageJ functions, measurement, filtering, background subtraction, cell counting, particle analysis, and ethics on image processing.

8:30am – 9:00am	Registration and continental breakfast
9:00am – 11:00am	Basic functions of ImageJ and measurement
11:00am – 12:00pm	Lab practice I
12:00pm – 1:00pm	Lunch
1:00pm – 3:00pm	Cell counting, particle analysis
3:00pm – 4:00pm	Lab practice II
4:00pm – 4:30pm	Digital image process ethics
4:30pm – 5:00pm	Lab practice III

Session II (April 15th) **Advanced ImageJ**: morphology filter, thresholding methods, using ImageJ on FRAP, colocalization analysis and wound assay, working with plugins, designing image analysis protocols.

8:30am – 9:00am	Q&A, continental breakfast
9:00am – 11:00am	Applications of ImageJ: colocalization, FRAP, wound assay
11:00am – 12:00pm	Lab practice IV
12:00pm – 1:00pm	Lunch
1:00pm – 3:00pm	Morphology analysis, segmentation algorithms
3:00pm – 4:00pm	Lab practice V
4:00pm – 5:00pm	Useful plugins

Session III (April 16th) **ImageJ Macro Programming**: introduce ImageJ macro programming language, record image process protocols as macro, batch process multiple images, user interactive features in macro, case study with sample codes. This session is aimed towards the non-programmer, however we do expect the participant to have a basic idea of programming flow control syntax (“for” loop, “if-else” control).

8:30am – 9:00am	Q&A, continental breakfast
9:00am -- 9:30am	Introducing Macro programming, basic flow control
9:30am – 10:00am	Macro Lab I
10:00am – 11:00am	Macro recording, working with folders and multiple files
11:00am – 12:00am	Macro Lab II
12:00pm – 1:00pm	Lunch
1:00pm – 2:00pm	Macro case study
2:00pm – 3:00pm	Macro lab III
3:00pm – 4:00pm	Macro case study
4:00pm – 5:00pm	Macro lab IV

Enrollment:

The workshop is limited to a maximum of 18 participants for each session (first come first served). Participants are encouraged to bring their own image analysis projects which may be discussed in the workshop (not guaranteed).

To register for the class, please fill out the registration form and submit it online.

<https://docs.google.com/spreadsheets/viewform?formkey=dHFsZVJWbTNrWEtCY1F1c1AybEt4dmc6MA>

Payment:

A seat for the workshop is guaranteed once a payment is either made by check or a PO or 33-digit billing code is provided by the due date specified. The registration fee includes:

- Handout materials, sample images with analysis protocols and sample macro codes
- Continental breakfast, light lunch, coffee break

Early bird rate: \$125 for each session; \$225 if registering for two sessions. \$320 if registering for all three sessions. Registration and payment due March 21st 2014

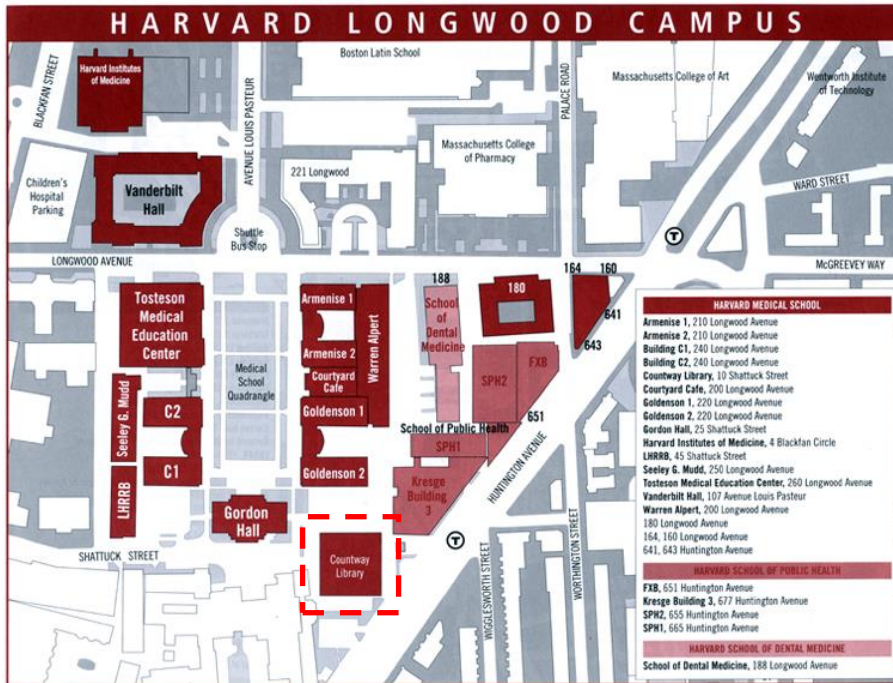
Regular rate (applies after March 21st, 2014): \$175 for each session; \$315 if registering for two sessions. \$450 if registering for all three sessions. Payment due on April 4th 2014

Methods of payment:

- Harvard 33 digit billing code
- PO number
- Check, payable to "Harvard NeuroDiscovery Center"

Location:

L2-025
Countway Library Computer Classroom
Harvard Medical School
10 Shattuck St. Boston, MA 02115



Cancellation policy:

Cancellation by April 4th, 2014: full refund
 Cancellation after April 4th, 2014: no refund

***For further information please contact: Lai Ding
 lai_ding@hms.harvard.edu***