

2-day BioVoxel Workshop

"Macro Scripting and Advanced Image Analysis"

Introduction

- Terms of the ImageJ macro language
- what are variable
- conventions for proper scripting
- Numbers, text and boolean
- how to read image information
- usage and handling of variables
- adding comments and information

Arrays

- storing multiple information content
- application of arrays in macros

Functions

- creating reusable macro code

Directories and Files

- defining directories for automation
- calling directories and files

Working with images

- automatic handling of images
- operations in images
- saving images in specific directories
- automatic processing of many images

Controlling ROIs (the ROI Manager)

- adding, selecting ROIs
- automatic measurements

Applying the Learned

- test your knowledge on assignments

3 - 6h working on own macros

- create macros for own images and experimental analyses
- troubleshoot with supervision

OR

Handling changing conditions

- if-then-else conditional processing
- if-then-else conditions in dialogs
- handling multiple conditions
- error handling

Loops (perfect for automation)

- for-loops
- while-, do-while-loops
- looping over files and images
- looping through pixels of images
- looping through ROIs

Specific User Input

- creating a dialog
- different parameter fields of dialogs
- reading user input from dialogs

Communication with the User

- using the print() / write() command
- displaying information as messages
- the "Log" window as output
- the "Results" table
- reading values from the "Results" table
- writing output to the "Results" table

Alternatively, to the application of macro scripting on own data, parts of this course can also be exchanged for selected modules on specific analyses (not all of the listed ones can be done in the same course)

- Statistical Co-Localization analysis
- Analysis of histological staining
- Insight into Deconvolution
- 3D reconstruction (visualization only)
- 3D measurements (volume, surface,...)
- 3D/4D shift registration and correction
- Automatic Tracking of moving objects
- 4D network tracing (semi-automatic)
- Densitometry of Western blots
- Image Stitching

2-day extensive workshop (~16 hours)