Processing and analysis of microscopical image data in biomedicine, 13.-17.4.2015

	Monday 13.4.	Tuesday 14.4.	Wednesday 15.4.	Thursday 16.4.	Friday 17.4.
8.30	*Registration*	X	X	X	X
9.00 - 9.45	Digital image data as a model of the real world	Detection of details in an image using convolution	Volume reconstruction from confocal data/ Evaluation of colocalisation in microscopic images	Electron microscopy tomography	Estimation of the rat brain volume using point counting method and Cavalieri principle
	Jakub Novák	*Jakub Novák*	*Martin Čapek*	*Jindřiška Fišerová*	*Barbora Radochová*
9.50 - 10.35	Point operations with image: What is LUT or histogram?	Basic segmentation methods	FRAP data analysis	Single particle analysis	Estimation of the root volume from physical sections
	Jakub Novák	*Martin Čapek*	*Michaela Blažíková*	*Lukáš Maršálek*	*Barbora Radochová*
10.35-10.55	coffee	coffee	coffee	coffee	coffee
10.55-11.40	Mathematical morphology as a tool to work with image noise	Complex methods for object identification	I am watching you or What does it mean "tracking"	Stereological methods and measurement of 3D data	3D analysis: Scale setting, 3D image filtration and measurement in ImageJ
	Jakub Novák	*J. Novák/J. Hanousek/J.Palas*	*Michaela Blažíková*	*Lucie Kubínová*	*Jiří Janáček*
11.45-12.30	Introduction to image processing software	Solving complex task: detecting cells in an image of the poor quality	Deconvolution	Evaluation of clustering and colocalisation in electron microscopy	3D analysis: Trianglulated surfaces reconstruction
	Jakub Novák	*J. Novák/J. Hanousek/J.Palas*	*Oleksandr Chernyavskiy*	Vlada Filimonenko	*Jiří Janáček*
12.30 - 13.30	*lunch*	*lunch*	*lunch*	*lunch*	Final participant test
13.30 - 14.20	Improving image using basic mathematical methods	Introduction to image operations using ImageJ	ImageJ: Volume reconstruction of large specimens from confocal image data	ImageJ: macro-making and other ImageJ options	*lunch*
	J. Novák/J. Hanousek/J.Palas	*Ivan Novotný*	*Martin Čapek*	*Ivan Novotný*	
14.25 - 15.15	From image to the object	ImageJ: Using segmentation for detection of structures in various microscopic images i	ImageJ: Evaluation of colocalisation in microscopic data	3D image processing and geometrical modelling	Final course evaluation 14.25-15-00 (Pavel Hozák)
	J. Novák/J. Hanousek/J.Palas	*Martin Čapek*	*Martin Čapek*	*Jiří Janáček*	
15.20 - 16.10	Using features for semi-automatic object detection	ImageJ: Using segmentation for structure detection in various microscopic images ii	ImageJ: FRAP data analysis	Analysis of 3D data and measurements of 3D biological objects	
	J. Novák/J. Hanousek/J.Palas	*Martin Čapek*	*Michaela Blažíková*	*Jiří Janáček*	
16.20-16.40	short participant test	short participant test	short participant test	short participant test	

18.00-21.00 Informal party with refreshments

Lectures

Excercises in groups