

Optical coherence tomography

data processing in LabVIEW

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Start date: March 2024, End date: 31 June 2024

7 meetings 2h long online meetings via Zoom + 1h for exam (15h),

Registration deadline is 28th February 2024

What you'll learn:

- A) OCT data processing:
 - a. what the raw OCT data looks like,
 - b. how to zero pad, remove DC, interpolate, numerically compensate dispersion,
 - c. how to perform spectral shaping and signal windowing,
 - d. how to numerically calibrate spectrometer for SD-OCT setup,
 - e. how to display the data,
 - f. how use phase information,
- B) LabVIEW:
 - a. how to setup LabVIEW environment for free,
 - b. how to use the interface efficiently,
 - c. how to create project with main Vi and library,
 - d. how to create subVI,
 - e. how to import/save data from/to text/binary file,
 - f. how useful for loop, tunnel mode, shift register, formula node, case structure, ramp pattern and indexing are,
 - g. how to create list of folders and move through the file structure automatically,
 - h. how to automatically: create path, concatenate strings, create folder,
 - i. how to work with arrays,
 - j. how to perform fit and to check goodness of fit,
 - k. what palate use to solve optimization problem,
 - l. how to design GUI,
 - m. what a event-driven state machine is,

Lecture language: English or Polish depends on the presence of foreign PhD students among the registered people

Method of assessment: short one-choice test, semester project presentation