Internship Project (part-time):

Developing a computer program for an Echelle spectrometer (Duration: 6 months, Start: 1st March 2019)

Description:

Fast spectrometers with no movable mechanical part use a camera as a sensor. In our project, we use a gated ICCD. The initial output of the camera is a matrix with 1024 x 1024 array; each array can have a number between 0 and 65535 (16-bit digitization). Based on the internal design of the spectrometer (Echelle in our project) different lines of this matrix should be selected (ROI: Regions of Interests), and some binning should be done (before or after the readout). Finally, the output of the spectrometer is a matrix with two columns, the first column is the wavelengths and the second column is the intensity of each wavelength. The calibration process will be based on data of some calibration lamp in the library of the system. After having this matrix, some post-processing (chemometrics) needs to be applied to the recorded data based on a given algorithm. All of this mentioned process should be done in a computer program (LabVIEW/Matlab/C++).

Qualifications:

- Excellent Bachelor’s grades.
- Programming skills (e.g., LabVIEW, Matlab or C++).
- Experience in spectroscopic system design/image processing/statistical calculations is a plus (not mandatory).
- Applicants are expected to have excellent language skills in English.

Tasks:

- Basic research
- Software programming

We offer:

- Opportunity to work in a highly innovative flagship project with up to 30 researchers.
- You will learn how to build a spectrometer.

Supervision:

- Hamed Abbasi (PhD Student): hamed.abbasi@unibas.ch; phone +41 (0)61 207 54 61;
- Prof. Dr. -Ing. Azhar Zam (Head of BLOG): azhar.zam@unibas.ch; phone +41 (0)61 207 54 60; http://blog.dbe.unibas.ch/

Workplace:

Gewerbestrasse 14, CH-4123, Allschwil, Basel-Land, Switzerland (Room 12.03.003, Lab 12.03.001)