



Student project proposal

Project title *Migrating the PMU code from MATLAB to Python with Parallel Processing*

Project type MSc thesis BA semester project MSc semester project

Project responsible and e-mail

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Project description and objectives

We have plans of migrating away from MATLAB towards Python for the R&D operations. The PMU code with the IpDFT is one of the components which is widely used when carrying out tests of our algorithms – and we would like to move and improve this code while migrating away from MATLAB. We have identified two main objectives for this project:

- Achieve the migration of the code from MATLAB to Python.
- Understand better the parallel processing capabilities of Python so that we can speed up the offline analysis.

According to examples in the literature of FFT with parallel processing we plan to develop these coding techniques in order to make our code compatible with parallel processing.

Tasks of the student

- Modularize the phasor data creation from waveforms – separating the data reading from the IpDFT, plotting and so on
- Parameterize the IpDFT algorithm (by changing the window length or the bins being analysed or harmonics to be reported)
- Make the code parallel processing compliant

Required skills

- Understanding of signal processing concepts
- Hands on Python (or willingness to explore Python)
- Basic software engineering knowledge – how to make a code modular – how to test the code