



28th March 2022

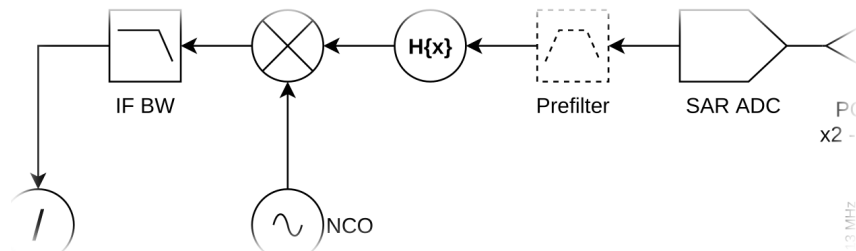
Student Work Opportunity (SHK)

Digital Signal Processing for Measurement Systems

In this role you will research and implement digital signal processing algorithms for a novel portable 4-port network analyzer. The data is recorded from an ADD and needs to be quadrature mixed with a numerically-controlled oscillator (NCO), filtered and transformed using hilbert or fourier transform. If you are interested, the activity can be extended to general embedded Software for the system, data analysis, implementation of calibration or other relevant system functionality.

Throughout the activity there will be design reviews with a mentor to discuss relevant decisions and find potential problems in an early stage.

The development platform for this project is a STM32G4 microcontroller with DSP and FPU instructions. The software is developed in the eclipse-based STM32CubeIDE and debugged on the microcontroller. As usual with microcontrollers the programming language is C or C++ but a reference implementation of the used algorithms can be made using Python or Matlab.



Focus of work

- Research algorithms required for implementation of the signal processing
- Reference implementation using Python or Matlab
- Selection of suited algorithms based on relevant metrics
- Implementation on the microcontroller
- Documentation of the development

Counterpart

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