SDR - Spectrum Sensing

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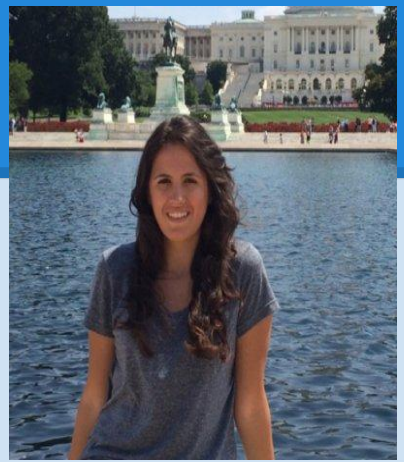
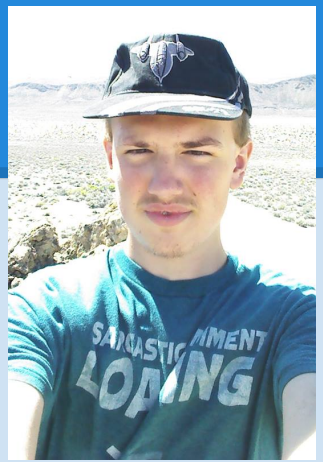
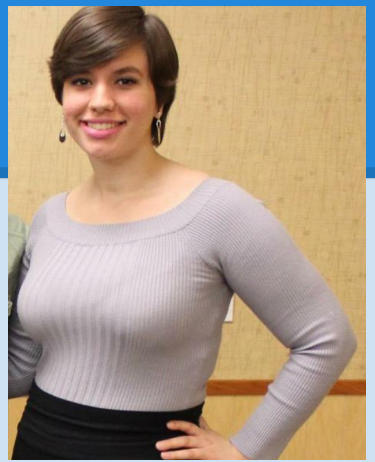






Overview

- **Started Development of PFU for Spectrum Sensing APP**
- **Finalization of MATLAB Implementation**
- **Integration of C++ Code into Wiserd**

PFU (Packet Fragmentation Unit Development)

GOAL:

- **Fragment FFT data from averaging unit and send it in packets of size 256 words (1024 bytes) to the output logic of the circuit.**

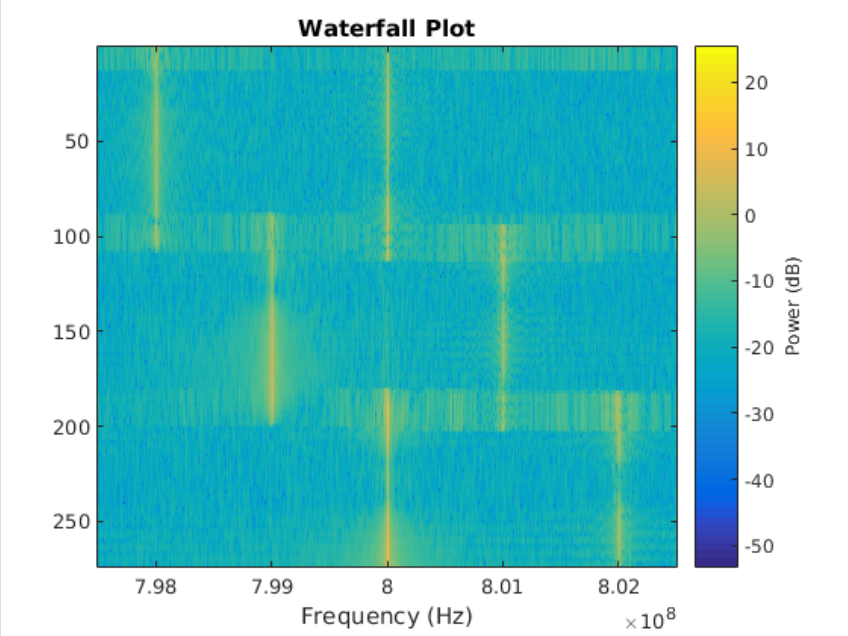
PROGRESS:

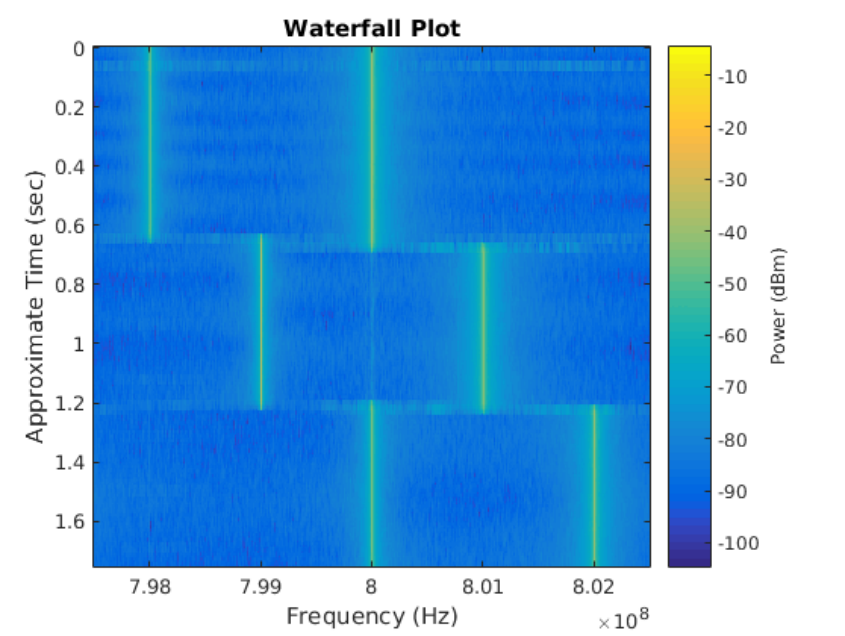
- **Have started to program a small-scale version of the PFU, splitting an 8-bit vector into 2 4-bit vectors. Have run into some bugs, state machine not shifting when supposed to.**

Finalization of MATLAB Implementation

- **Fixed moving average filter**
  - Realized we were averaging complex samples as opposed to the magnitude of complex samples
- **Fragmented original script into multiple functions**
  - Plan to do the same with C++ implementation
- **Final bug fixes and improvements**

Finalization of MATLAB Implementation





Integration of C++ Code into Wiserd

Transmitter Modules

signal_from_file

waveform

Receiver Modules

fft_movavg_upd

fft_pow_upd

fft_movavg_oml

fft_sigpower_oml

time_samples_to_file

real_time_plotting

- **Adding a receiver module to existing Wiserd framework**
- **real_time_plotting module**
  - Store samples in a buffer
  - Once buffer is filled, generate FFT and plot using Gnuplot
  - Repeat until user terminates session

Next Week

- **Continue programming the PFU**
- **De-bug current sample program**
- **Scale up and add features like data_en**
- **Testing/editing new receiver module in ORBIT**
- **Making a user interface**