1. **Research Title:** *Method for Porting Signal Processing and Waveform Analysis Algorithms from MATLAB code to FPGA hardware*

2. **Individual Sponsor:**
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3. **Academic Area/Field and Education Level:** Electrical Engineering and Computer Science / Communications, Signal Processing, FPGA development with VHDL (MS or Ph.D. level)

4. **Objectives:** Research and develop the transfer of a given Communications Algorithm from MATLAB to FPGA implementation in hardware. Develop a general technique for future transfers of similar algorithms including various signal processing techniques.

5. **Description:** Algorithms developed using MATLAB or other simulation tools at some point in the developmental stage have to be transferred to FPGA for field testing and evaluation in real time scenarios. A standard procedure does not exit and the process of importing to FPGA is unique and customized to that particular algorithm or technique. The proposed project will develop an algorithm transfer design method that will start as a known communications implementation problem, and then branch out into a general approach to porting MATLAB code for FPGA implementation.

6. **Research Classification/Restrictions:** This research is FOUO

7. **Interest in Summer USAFA Cadet (Avg Cost for USAF Cadet for 33 days was $4000):** Not Sure

8. **Eligible Research Institutions:**

   ■ Universities (DAGSI) ■ AFIT