**Andrew Cragg U.S. Citizen**

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(703) – 939 – 5045 Atlanta, Georgia 30309

**MSECE Student graduating Fall 2019**

Student at the Georgia Institute of Technology pursuing a Master of Science in Electrical and Computer Engineering. Skilled in digital signal processing, software defined radio development, RF systems design, data analytics, and wireless communications systems design with a strong academic foundation backed by applied industry experience

**Experience Highlights:**

* Developed a spectrum identification system using Cyclostationary analysis and Convolutional Neural Networks for the MITRE Army Signals Challenge
* Designed a PI/4-QPSK signal demodulator using C++ and the REDHAWK framework for use on TETRA signals
* Won the LGS Innovations 2017 Star Scholar award for work done on data analytics and geo-clustering
* Developed MATLAB demodulator and decoder for FM-RDS data based on the published specifications
* Produced an open-source and low-cost FMCW RADAR for educational and hobbyist use
* Designed a 2.4 GHz +18dB linear amplifier and ‘Rat-Race’ Coupler for a coherent demodulator
* Developed a real-time FIR filter signal path using Verilog on an Altera MAX-10 FPGA for the LimeSDR-Mini
* Use of SDR frameworks (GNU Radio, X-Midas) to reverse engineer unknown signal modulation schemes for the MITRE Army Signals Challenge

**Skills**

* Proficient in software Digital Signal Processing design (MATLAB, C++, GNU Radio, REDHAWK, Python)
* Experienced with multiple programming languages (C, C++, Python, Java, MATLAB, Verilog, JavaScript)
* Use of microwave simulation tools for designing RF amplifiers and circuit layouts (AWR Microwave Office)
* Knowledge of RF lab equipment for circuit characterizing and troubleshooting (Oscilloscopes, Vector Network Analyzer, Spectrum Analyzer)
* Use of scripting languages such as Python and MATLAB for fast-paced DSP research and system prototyping
* Printed circuit board design, layout, prototyping (KiCad, Autodesk EAGLE)
* Linux user, experienced with common Linux tasks, environment setup, and version control
* Project writeups, white-paper writing, public presentations

**Education**

*Georgia Institute of Technology –* Expected Graduation Fall 2019, Master of Science, Electrical and Computer Engineering

*North Carolina State University* – 2018, Bachelor of Science, Electrical and Computer Engineering Dual Degree, Cum Laude

**Work Experience**

*Axios, an LGS Innovations Company –* March 2016 – current

Engineering Intern working on Digital Signal Processing and data analytics. Designed QAM/PSK demodulator for integration with the REDHAWK framework. Used cyclostationary analysis and Convolution Neural Net for spectrum

identification. Implemented signal plotting library on Android devices using the react-native framework to operate with the RTL-SDR device.

*NCSU Physics Department* - Fall 2014

Research Assistant: Assisted Professor Daniel Dougherty with his research on surface growth in nano-structures. Wrote C ++ program to simulate physical models and explore new methods for modeling surface growth.

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|  | ECE 420 – Advanced Wireless Communications SystemsECE 421 – Digital Signal ProcessingETSN01 – Advanced TelecommunicationsETIN45 – DSP Design (Hardware DPS design)ECE422 – Radio Systems Design  | ECE464 – ASIC Design with VerilogECE 306 – Embedded Systems ECE 308 – Elements of Control SystemsECE 309 – Object Oriented ProgramingECE 302 – Micro Electronics |

**Relevant Courses**

**Honors and Activities**

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| * LGS Innovations Star Scholar Award
* Gilman Scholarship recipient
* Avid backpacker and hiker
 | * NC State Chancellor’s Leadership scholar
* NC State ECE Fall 2018 Senior Design 1st prize
* Phi Gamma Delta Fraternity
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