Eric C. Paulz

Curriculum Vitæ

General Information

Hume Center for National Security and Technology
Virginia Polytechnic Institute and State University
1311 Research Center Drive
Blacksburg, VA 24061

epaulz@vt.edu / eric.c.paulz@gmail.com
Phone: 540-231-6180 (w) / 864-243-6767 (c)
https://www.hume.vt.edu/personnel/detail?id=405
https://epaulz.github.io/

Research Interests

As an engineer early in his career with a background in software development, I am always interested in being exposed to new technologies and areas of research & development that will serve in shaping the future. I actively work in the realm of embedded systems, specifically with development of secure systems that incorporate wireless communication which have potential for both military and commercial applications. I constantly strive to improve my skills in these areas, and specifically seek to enhance my expertise in wireless communications and communication theory in general. Additional interests include but are not limited to: automotive- & aviation-related research, cybersecurity, and data science.

Education

B.S. Computer Science, Clemson University — 12/2018

Employment

Virginia Polytechnic Institute and State University (Virginia Tech), Blacksburg VA
Computer Engineer, Hume Center for National Security and Technology — 1/2019 – Present

BMW Group, Greenville/Spartanburg, SC
IT Innovations and Research Intern, innovation[LAB] — 5/2018 – 8/2018
Material Control Intern, Plant Spartanburg — 5/2017 – 8/2017

Clemson University, Clemson, SC
Educational Media & Web Support Intern, Clemson Online — 1/2017 – 4/2017

Teaching

Teaching Assistant, Computer Science 101 & Lab (CPSC 1010/1011), Clemson University — Sp2017

Project Contributions & Sponsored Research*

Virginia Tech Portfolio

*Electronic Systems Lab: **RRPUCS Phase 1**, GIRD Systems, *(Embedded Systems / Wireless Comms)* 2019-2020

- Developed a custom MAC layer to support LPI/LPD focused PHY layer on a custom hardware platform.
- Developed a sophisticated unit test suite for software codebase.

*Electronic Systems Lab: **AV Infrastructure**, Ford Motor Co., *(Autonomous Vehicles / IoT)* 2019-2020
- Researched existing material relevant to AV sensor degradation and resilience techniques.
- Developed multi-component software simulation platform for intelligent AV infrastructure.

*Electronic Systems Lab: **Vertically Integrated Programs**, n/a, *(Python / Automation)* 2019-2020
- Developed Python script to automate attendance taking for ITAR restricted lecture.

*Aerospace & Ocean Systems Lab: **WBSAT**, sensitive sponsor, *(OpenCPI / CubeSat)* 2019
- Utilized OpenCPI framework to develop embedded software to support execution of various communication functions on custom hardware.

*Aerospace & Ocean Systems Lab: **ARSAM**, sensitive sponsor, *(Python)* 2019
- Supported migration of software codebase from Python2 to Python3.

BMW Group Portfolio

innovation[LAB]: **Predictive Maintenance** *(IoT / Embedded Systems),* 2018
- Used advanced networking and data processing tools to collect information from sensors and cameras around the plant.
- Analyzed trends in the data to predict when a machine is expected to fail.
- Future work included leveraging machine learning to improve accuracy of predictions.

innovation[LAB]: **J.D. Power Sentiment Analysis** *(Natural Language Processing / Data Science)*, 2018
- Utilized data science techniques for cleaning and pre-processing data prior to analysis.
- Used sentiment analysis tool (VADER) to identify customer sentiment from official J.D. Power reviews.
- Created visualizations for presentation of results using Tableau software.

Plant Spartanburg: **Daily Task Automation & Excel Macro Scripting**, *(Excel VBA / Python)*, 2017
- Used Python language to automate repetitive tasks within the department to improve productivity.
- Used VBA to code large and complex Excel macro scripts for cross-department use. Many of these scripts are still in use by currently BMW employees.