

JACOB ASHMORE - COMPUTER ENGINEER

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Computer Engineer with a wide range of experience centered around embedded systems development and hardware/software cyber security. Looking for a role to deepen my technical knowledge in software development.

EDUCATION

MS Computer Science	Georgia Institute of Technology, Atlanta GA	December 2023 (expected)
BS Computer Engineering	Georgia Institute of Technology, Atlanta GA	December 2017

SKILLS

Languages: Python, Bash, ARM/x86, C/C++ Prior experience with: MatLab, Javascript, HTML/CSS
Operating Systems: Linux (Ubuntu, Alpine, Debian, Cumulus, Raspbian) and Windows
Software: Embedded Linux, Ghidra, Kubernetes, Helm, Docker/Docker-Compose, GitHub/GitLab, Jira/Confluence/Bitbucket, Elasticsearch/Logstash/Kibana, Tinker CAD, GNU Radio
Embedded Systems: Arduino, Raspberry Pi and Software Defined Radios (Ettus)
Equipment: Skilled with designing and printing models with Prusia 3D printers, Proficient with general shop tools including soldering and electronic lab test equipment

WORK EXPERIENCE

Georgia Tech Research Institute **Atlanta, Georgia, 05/2017–Present**
Embedded Systems Vulnerabilities Division

Research Engineer/Student Coordinator (Full Time) **Atlanta, Georgia, 06/2018–Present**

- Technical research areas include reverse engineering and vulnerability assessments of embedded systems, cyber warfare, hardware and firmware reverse engineering, DevOps infrastructure management
- Responsible for interviews, hiring, management, technical direction and mentoring to students in the division
- Principal Investigator/Technical Lead on a multi-year research project dealing with
 - Research and development of Embedded Linux sensing units based on a RPI 3 B+ to record data/actuate physical systems using Python integrated with Docker and Docker-Compose
 - Administration of an on-prem Kubernetes cluster running an ELK stack using Ansible/Helm/Docker
 - Establish and distribute technical tasking to a team of ~3 engineers and ~3 students
 - Assist in managing the budget (~\$1M), as well as interfacing with customers to achieve goals
- Experienced in analyzing device vulnerabilities to attacks such as replay attacks, spoofing attacks or attacks that exploit device weaknesses primarily through Ghidra RE, SDRs, GNU Radio and Python programming
- Technical Lead of an IRAD whose goal was to develop a portable test bed to explore vulnerabilities and demonstrate exploits within the ADS-B protocol, which was a finalist for IRAD of the year in 2019
- Assist with teaching a vertically integrated project to undergraduates at the Georgia Institute of Technology: Embedded System Cyber Security, where we explore hands on reverse engineering of IOT systems

Technical Assistant (Full Time) **Atlanta, Georgia, 01/2018–06/2018**

- Responsible for subject matter expert annotation of a computer vision dataset of electronics components
- Built a continuity testing system for arbitrary multi-point probing with uArm Swift robotic arms and a 3D printer

Georgia Tech Research Institute **Atlanta, Georgia, 05/2017–12/2017**
Network Vulnerabilities Division

Student Intern (Part Time) **Atlanta, Georgia, 05/2017–12/2017**

- Developed a continuity testing system utilizing a 3D printer, Computer Vision (OpenCV) and PyQt4/5
 - Integrated LIDAR, ultrasonic, accelerometer, vibration and audio sensors into an Arduino Nano and Raspberry Pi3 hardware design to collect data for the detection of events using C++ and Python
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PUBLICATIONS

C. Kuo, J. D. Ashmore, D. Huggins and Z. Kira, "Data-Efficient Graph Embedding Learning for PCB Component Detection," *2019 IEEE Winter Conference on Applications of Computer Vision (WACV)*, Waikoloa Village, HI, USA, 2019, pp. 551-560, doi: 10.1109/WACV.2019.00064.