

# Benjamin Andrew Cyr

1681 Broadway St. Apt. 304 | Ann Arbor, MI 48105 | +12563483043 | bencyr39@gmail.com

## **Education**

University of Michigan – Ann Arbor, Michigan

*Computer Science and Engineering Ph.D. Student – Second Year*

- GPA: 4.00/4.00
- Research Adviser: Kevin Fu, Ph.D.

Auburn University – Auburn, Alabama

*Bachelor of Electrical Engineering (Computer Engineering Option) - December 2017*

- GPA: 3.98/4.00
- Dean's List: All Semesters

## **Research Experience**

University of Michigan – Ann Arbor, Michigan

*Graduate Research with Dr. Kevin Fu (Summer 2018 – )*

- Research on the Security of Cyber-Physical Systems
- Work on security of LiDAR in Autonomous Vehicle Systems

Auburn University – Auburn, Alabama

*Undergraduate Research with Dr. Stanley Reeves (Fall 2016 – Spring 2017)*

- Research for a professor developing system for image processing
- Hands-on experience with Xilinx SoC Zynq-7000

*Undergraduate Research with Dr. Yin Sun (Fall 2017 – Spring 2018)*

- Developing ideas for optimizing the flow of information in real-time networks.
- Working on control theory to optimize flow of information in control systems.
- Constructed MATLAB simulations for a paper submitted to *IEEE SPAWC Conference -- Special Session on the Age of Information, 2018.*

*Undergraduate Research with Dr. Ujjwal Guin (Spring 2018)*

- Hardware security research to prevent firmware cloning in embedded systems.
- Involved reproducing a firmware extraction attack on an STM32 Microcontroller
- Experience in writing research papers and presenting ideas.
- Submitted a paper to the *International Test Conference (ITC), 2018.*

Hochschule Mannheim – Mannheim, Germany

*Undergraduate Research with Prof. Dr. Walter Götzmann (May 2017 – July 2017)*

- Developed embedded system to measure data from an electronic bike.
- Worked on experimental hardware and interfacing with a mobile application.
- Experience in using Atmel AVR microcontrollers.

## **Work Experience**

ADTRAN Inc. – Huntsville, Alabama

*Converged Access Platforms - Full Time (May 2016 – August 2016)*

- Development on ADTRAN proprietary equipment
- Improved performance on network driver
- Experience in working with the Linux kernel and C programming

*Design and Verification Testing - Full-Time (August 2015 – December 2015)*

- Wrote automated tests for networking equipment using Python.
- Tested ADTRAN's Management and Switch Modules (MSM) for the Total Access 5004.
- Wrote a "Smoke Check" to test the functionality of new software releases on the MSM.
- Experience being a part of an Agile design team.

*System Design and Verification Testing - Full-Time (January 2015 – May 2015)*

- Tested a network of Multi-Service Access Nodes using CLI and proprietary GUIs.
- Networking experience with Ethernet, Fiber Optics, and DSL.
- Experience with Cisco and ADTRAN Switches, as well as ADTRAN's Total Access 5000 Series MSAN.
- Bug Reporting through Atlassian Suite, specifically JIRA.

Science Applications International Corporation (SAIC) – Huntsville, Alabama

*Private Network System Administrator – Full-Time (May 2014 – August 2014)*

- Built and maintained machines to add to a private network of Helicopter Simulators.
- Experience using Red Hat Enterprise Linux 5 and 6.
- Some experience with RHEL Servers, Windows Active Directory, Open Puppet and Cisco Switches.

**Publications**

*Adversarial Sensor Attack on LiDAR-based Perception in Autonomous Driving*

Yulong Cao, Chaowei Xiao, Benjamin Cyr, Yimeng Zhou, Won Park, Sara Rampazzi, Qi Alfred Chen, Kevin Fu, Z. Morley Mao – The 26th ACM Conference on Computer and Communications Security, 2019.

*Low-Cost and Secure Firmware Obfuscation Method for Protecting Electronic Systems from Cloning*

Benjamin Cyr, Jubayer Mahmud, Ujjwal Guin - IEEE Internet of Things Journal, 2019.

*Sampling for Data Freshness Optimization: Non-linear Age Functions*

Yin Sun, Benjamin Cyr, 2018

*Information Aging through Queues: A Mutual Information Perspective*

Yin Sun, Benjamin Cyr - IEEE SPAWC Conference – Special Session on the Age of Information, 2018

**Involvements**

Auburn University Small Satellite Program (Spring 2014 – Spring 2018)

- Member of the Electrical Power System Team.
- Programming a Microcontroller in C to control deployment and power regulation.
- Designing the PCB for the Electrical Power system using Autodesk EAGLE.
- Completed Preliminary Design of an Attitude Determination and Control System for another CubeSat as a side project for AUSSP.

## **Skills**

- Computer literacy: Windows, Apple, and Linux systems
- Operating systems and software knowledge includes:
  - Windows XP, Vista, 7, 8, 10
  - Mac OS X
  - Red Hat Enterprise Linux 5, 6
  - Centos 7
  - Ubuntu 14, 16, 18
  - Microsoft Word, Excel, PowerPoint, Outlook
  - National Instruments Labview, MultiSim
  - Autodesk EAGLE
  - MATLAB/Simulink
- Experience with the following programming languages:
  - C/C++
  - Java
  - Python
  - VHDL
  - ARM Assembly
- Business systems knowledge: typing (approx. 60 wpm), photocopiers
- Skills in soldering and repairing electronics
- Knowledge on building and upgrading computers

## **Honors & Awards**

- Valedictorian of Westminster Christian Academy Class of 2013
- National Merit Finalist
- Bryant-Jordan Scholarship
- Auburn Presidential Scholarship
- Samuel Ginn College of Engineering Dean's Scholarship
- Dudley Academic Scholarship