Joshua C. Detwiler

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Permanent Address: Christiansburg, VA 24073

Education

Ph.D., Computer Science, GPA: 3.88 Jan. 2020 – Present
Virginia Tech, Blacksburg, VA

B.S., Computer Science, GPA: 3.74 Dec. 2019
B.S., Mathematics, Applied Discrete option Dec. 2019
Virginia Tech, Blacksburg, VA
Magna Cum Laude, Honors Scholar

Research Experience

Graduate Research Assistant, VT Dept. of Computer Science Jan. 2020 – Present
- Urban Computing project to address school redistricting in Loudoun County, VA as a mathematical optimization problem and to generalize it to other districting questions

Undergraduate Research, Hume Center at VT Jan. 2019 – Dec. 2019
- Applied software engineering principles to sketch a new design specification for the project's experiments
- Contributed to the correction of the random sampling technique used for flipping bits in neural network weight matrices
- Debugged system dependencies in the code and also ensured a working runtime environment

Professional Experience

Student Trainee, Department of the Navy, Dahlgren, VA May 2021 – Aug. 2021
- Worked on process modernization and recombining codebases that had forked

Student Trainee, Department of the Navy, Dahlgren, VA May 2020 – Aug. 2020
- Wrote a Python 2.7 distributed and multiprocessed application for network performance analysis with a GTK 2 GUI

SMART Intern, Department of the Navy, Dahlgren, VA May 2019 – Aug. 2019
- Presented unit testing to change internal developer culture
- Fixed bugs and improved features in the RHEL 4 STIG benchmark from prior summer

SMART Intern, Department of the Navy, Dahlgren, VA May 2018 – Aug. 2018
- Python 2.3 script to automate RHEL 5 STIG checklist for RHEL 4 backward compatibility

CS Undergraduate Research Assistant (URA), VT CS Department Oct. 2017 – Feb. 2018
- Set up parallel benchmarks in Ubuntu with gem5

Student Trainee (CS / Math), Dept. of the Navy, Dahlgren, VA May 2017 – Jul. 2017
- C++ program to simulate a FLIR camera using socket programming and multithreading

Software Engineer (Co-Op Spring 2017), Solers, Blacksburg, VA Jan. 2017 – May 2017
- Java demo to replace of a client's legacy data processing system
- Used Apache Spark, MongoDB, VM cluster

Teaching Experience

CS Graduate Teaching Assistant (GTA), VT CS Department Aug. 2021 – Present
Held office hours and graded assignments and projects.
- CS 3214, Computer Systems (Fall 2021)

CS Undergraduate Teaching Assistant (UTA), VT CS Department Aug. 2016 – Dec. 2018
Held office hours to answer student questions for homework and projects.
- CS 3214, Computer Systems (Fall 2018)
  - Presented course project help sessions with other TAs
  - Contributed a new help session for the midterm exam
  - Helped debug the course autograder when issues arose
- CS 2505, Intro. to Computer Organization I (Spring 2017, Fall 2017)
  - Some additional grading responsibilities for homework and exams
- CS 1064, Intro. to Python (Fall 2016)

Publications

- L. Wong *et al.*, "Resilience Improvements for Space-Based Radio Frequency Machine Learning," *2020 International Symposium on Networks, Computers and Communications (ISNCC)*, 2020, pp. 1–5.
- E. Altland *et al.*, "Quantifying Degradations of Convolutional Neural Networks in Space Environments," *2019 IEEE Cognitive Communications for Aerospace Applications Workshop (CCAAW)*, 2019, pp. 1–7.

Awards and Affiliations

Urban Computing NRT Fellowship Jan. 2020 – Present
- The UrbComp NSF Research Traineeship (NRT) Fellowship awards a 2-year grant to UrbComp Ph.D. students pursuing the program's Urban Computing certificate.

SMART Scholarship May 2017 – Dec. 2019

- Scholarship-for-service program that converts scholars into DoD government employees after graduation.
- Awarded the scholarship starting in Fall 2017 to pay for undergraduate tuition.