Caleb O'Neal

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Education

Bachelor of Science in Computer Engineering — Expected May 2028
University of Virginia — *GPA: 3.94/4.00*

Associate of Science in Computer Science — June 2025
Northern Virginia Community College — *GPA: 3.84/4.00*

Work Experience

Intern — August 2024 – May 2025
Virginia Tech Qualcomm Thinkabit Lab — *Falls Church, VA*
- Built an web-based simulation of a BLDC motor to demonstrate motor-control fundamentals using React and Rust
- Assisted in lab tasks like cleaning, organizing, developing teaching materials, and leading school groups in STEM activities

Teaching Assistant — January 2025 – May 2025
Arlington Career Center — *Arlington, VA*
- Taught a 15 student college statistics course, teaching statistical analysis and real-world data interpretation
- Evaluated assignements and research posters, critiquing students' analysis of relationship in real-world datasets

High School Intern — June 2024 – August 2024
Department of Defense — *Virginia*
- Redesigned a department website to guide agency management to enterprise architecture data visualization tools
- Migrated the team's Git repositories between Git hosts, enabling new CI/CD features and better DX for the team
- Collaborated with the team's Scrum Master to follow Agile principles including regular code reviews and sprint planning

Projects

NASA App Development Challenge, PyCon US 2024 Poster Presentation — October 2023 – May 2024
- Developed a 3D interactive simulation of lunar surface exploration for a potential landing site for NASA Artemis III mission in Python, simulating landing, navigating on the lunar surface, and communication with the Lunar Communications Relay
- Selected to present our simulation to software professionals at the PyCon US 2024 poster presentation session

Martian Crater Data Analysis — August 2023 – May 2024
- Analyzed a dataset of 350,000 Martian craters and found a statistical relationship between crater eccentricity and its latitude on Mars using a pearson correlation test
- Used SAS to perform statistical analysis and visualize geographic trends in the dataset
- Presented findings for peer review and to an audience at Northern Virginia Community College

FIRST Robotics Competition Team — August 2022 – May 2025
Team Captain, Programming Lead
- Captained a 50-member robotics team with a $50,000 annual budget to deliver consistently high performing robots
- Redesigned and formalized the team management structure following significant membership growth
- Wrote Java code to control autonomous and teleoperated robot behavior including autonomous navigation and balancing on field elements that led to a peak autonomous ranking of 27th of approximatly 3,300 teams
- Wrote robot controls logic using PID controllers that incorporated data from computer vision systems, IMUs, and rotary encoders using a Kalman filter

Skills

- **Programming**: Python, C, C++, Java, JavaScript, SAS, Rust, Zig
- **Tools**: Git, CI/CD, Linux, KiCad, QEMU