Nathan Adkins

🤳 +1 443-987-5258 🛛 nathanpadkins@gmail.com 🖳 nathanadkins.com

Education

West Virginia University, Morgantown, WV	Expected: May 2025
Bachelor of Science in Computer Engineering (ABET), Minor in Computer Science, Minor in Economics	GPA 3.40

Internships & Experience

WVU Interactive Robotics Laboratory, Morgantown, WV

NSF-Funded Undergraduate Researcher

- Conducted NSF-funded research for creating a real-time safety map using an autonomous wheeled mobile robot.
- Fully integrated an autonomous navigation system utilizing a lidar, inertial sensors, and SLAM algorithms.
- Created and integrated a tool for automatically mapping safety data in retail spaces utilizing coefficient of friction
- data and semantic segmentation while dynamically interpolating and updating a safety map.

Research Intern

- Co-authored an IROS 2023 paper on swarm robotics and robotic morphogenesis.
- Studied emergent behavior in robotic swarms utilizing biologically inspired design.
- Developed a scalable software architecture for a unique robotic swarm system utilizing Python and ROS.
- Presented preliminary research at the 2022 WVU Summer Research Symposium as part of an REU program.

Projects & Leadership

WVU University Rover Challenge Team, Morgantown, WV

Algorithms Lead

- Leading over 10 programmers in developing a robot capable of autonomously navigating a mock Mars environment using GPS, LiDAR, IMU, SLAM techniques, and object detection models.
- Second place in the 2024 international competition with a 97th percentile score in the autonomous navigation mission amongst over 100 teams.
- Personally wrote over 6000 lines of Python, C, C++, and JavaScript for robot operations, including autonomous navigation and planning, computer vision, a React-based UI, device drivers, and microcontroller firmware.

Programming Lead

- Trained and led a team of over 20 programmers in the development of a robot capable of autonomously navigating a mock Mars environment, resulting in a first-place victory at the 2023 international competition.
- Saved an estimated 50 hours of programming time automating the creation of multiple motor libraries by regex parsing HTML and PDF files and generating Python code.

Programmer

- Learned the ROS and ROS2 frameworks through Python and C++ programming and robot testing.
- Developed proficiency in Ubuntu Linux by breaking and determinedly fixing robot hardware and software.

Honors & Awards

Second Place, 2024 University Rover Challenge Statler Research Scholarship First Place, 2023 University Rover Challenge June 2024 Fall 2023, Spring 2024 June 2023

May 2023 - Aug 2023

May 2022 - Apr 2023

Aug 2023 – Present

Aug 2022 - Jul 2023

Feb 2022 – Jul 2022

Publications

 Smith, T., Butts, M., Adkins, N., Gu, Y., "Swarm of One: Bottom-up Emergence of Stable Robot Bodies from Identical Cells," IEEE/RSJ IROS 2023, Oct 2023.

Skills

Languages: Python, C, C++, JavaScript, MATLAB, Bash Software: Ubuntu Linux, Git, ROS (Robot Operating System), ROS2, React, Docker, OpenCV, Matplotlib, NumPy Hardware: Microcontrollers, KiCAD, LTSpice, UART, CAN Engineering: Technical Documentation, Systems Integration, Software Design, Project Management