Charles Hodgins

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EDUCATION

Binghamton University, State University of New York, Thomas J. Watson College of Engineering and Applied Science
Bachelor of Science in Computer Engineering *Expected May 2025*
Cumulative GPA: 3.54/4.00 | **Dean's List:** Spring 2022, Spring 2023
Relevant Coursework: Digital Systems Design, Data Structures and Algorithms, Operating Systems, Machine Learning, Neural Networks and Deep Learning, Detection Theory

TECHNICAL SKILLS

Programming: Python (pandas, scikit-learn, pytorch), C/C++, Matlab, JavaScript(Node.js, React.js), Bash
Development Tools: Git/Github, Linux Os, Windows, VSCode

PROFESSIONAL EXPERIENCE

Research Assistant, *Binghamton University* | Vestal, NY *April 2024 - August 2024*
- Cooperated with colleagues to devise a system for collecting 8 different sensor values, tens of times per second
- Engineered a custom Arduino program that enabled microcontrollers to transmit precise PWM signals from RC car motors, boost amount of training data for analysis and ML algorithm by 100%

Undergraduate Course Assistant, *Binghamton University* | Vestal, NY *January 2024 - May 2024*
- Assessed and guided students in EECE 287 Sophomore Design, an introductory class in embedded computer systems
- Aided in instructing class of more than 120 computer engineering students to reinforce material from lecture and lab
- Conducted student code reviews to over 20% of the class to supply feedback and help students improve coding practices

PROJECT EXPERIENCE

F1Tenth Autonomous RC Race Car for Lockheed Martin - Software Lead *August 2024 - Present*
- Train a robotic system using a depth camera, inertial measurement unit and lidar to drive a model RC car to drive autonomously using ROS software system running on Nvidia Jetson Orin Nano
- Develop and integrate multiple ROS2 Packages to interface with an Intel Realsense Camera, acquire training data from various sensors and deploy a machine learning model for autonomous driving using real-time sensor metrics

Metal Detector Embedded System *April 2024 - May 2024*
- Implemented a comprehensive data processing algorithm for a metal detector system, streamlining magnetic sensor data analysis; quantified the sensor readings with 3 separate metrics
- Created a softcore processor in Xilinx Vivado, and wrote C program to distinguish between different thresholds of magnetic field strength, correctly identifying magnetic field strength with 93% accuracy

IR-Controlled Tank Robot *April 2023- May 2023*
- Programmed robot to traverse course consisting of 5-10 obstacles, combining logic and more than 10 sensors and outputs to enhance navigation and interfacing
- Wrote hundreds of lines of functional code to implement PWM, bit manipulation and signal processing allowing the robot to operate autonomously, resulted in tank robot avoiding collision with 100% of obstacles on 3 differently configured trials

LEADERSHIP & INVOLVEMENT EXPERIENCE

Binghamton Rover Team - *Firmware Engineer* *May 2024 - Present*
- Collaborate with team members to write software for sub processes within the university's competition rover
- Program microcontroller boards to interface subsystems of rover network driven by Dart software on Raspberry Pis

Binghamton Skate Club - *Vice-President* *August 2023 - Present*
- Collaborated with campus services to grow a 250+ member roller sports community for athletes of all skill levels.
- Campaigned to the club university financial committee to secure hundreds of dollars in funding and a designated skating space on campus

Private Physics & Calculus Tutor *August 2023 - May 2024*
- Engaged with 5 peers individually to enhance understanding and performance in general physics and calculus classes
- Produced personalized study guides based on lesson plans and homework assignments to increase in exam performance in all 5 peers

WORK EXPERIENCE

Orsay Restaurant, *Server* *June 2022 - August 2024*
- Prepared the restaurant for service, provide professional hospitality to more than 100 guests at a time
- Developed and delivered a comprehensive menu presentation that highlighted key culinary trends and customer preferences based on a menu with 6 rotating special courses per week