Aiden Ballard

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EDUCATION

West Virginia University, Morgantown, WV Expected, May 2027
Bachelor of Science in Computer Science
GPA: 4.00/4.00
Related Coursework: Software Engineering, File and Data Structures, Computer System Concepts, Secure Software Development, Principles of Programming Languages, Discrete Mathematics
Awards: President's List: Fall 2023, Spring 2024, Fall 2024, and Spring 2025

PROJECTS

WVU Autonomous "Attacker" Drone, WVU Blimps Team
- Improved targeting algorithms for about a 34% increase in accuracy using frame differentiation.
- Developed OpenCV algorithms to detect and track targets/goal posts in 23 frames per second.

"Snowhere You're Going"
- Coordinated the participation of 8 team members and assimilated their work in our ~4000-line code base using Git.
- Interfaced a 32 gigabyte Azure SQL database to securely store, access, and update user info.
- Leveraged RESTful APIs from NOAA and weather.gov to forecast weather at 350 resorts.

Design of a Simple CPU
- Implemented an 8-bit CPU on a DE10-Lite FPGA for 3 key functions: load, add, and store.
- Developed a 15-state FSM to orchestrate CPU operations based on 3-bit opcodes.

SKILLS

Programming Languages: Java, Python, C, C++, HTML, CSS, JavaScript, SQL
Technical documentation and writing, Windows, Linux (Ubuntu, Raspbian, Kali), Git, OpenCV, ROS, NodeJS, React, Microsoft Office (Word, PowerPoint, Excel)

WORK HISTORY

Embedded Artificial Intelligence Intern, West Virginia University February 2025 – Present
- Expanded dataset 7x using data augmentation for enhanced natural language processing and model training.
- Developed a Python-based speech recognition and text-to-speech interface, achieving response times under 4 seconds.

Undergraduate Lab Assistant, West Virginia University September 2023 – August 2024
- Researched computer vision tracking techniques to detect objects in real time producing a 75% accuracy rate on Raspberry Pi models 02 W and 4B.
- Facilitated autonomy in four drones using ROS2 resulting in a successful, autonomous capture during competition.

PUBLICATIONS

Jackson, I. S., Ballard, A. G., Hefeida, M. S., Srivastava, A. K., & Gyawali, P. K. (2025). Development of Microcontroller-Based AI Robot Tour Guide Utilizing Custom Language Models. 2025 IEEE World AI IoT Congress (AIIoT).

LEADERSHIP & ACTIVITIES

Men's Ultimate Frisbee – President August 2023 – Present
- Generated $9,800 through fundraising, tournament hosting, and merchandise selling.