Nicholas Wade

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Education

Purdue University West Lafayette, IN

B.S Computer Science, Cert. Entrepreneurship & Innovation *Aug. 2021 - Expected May 2025*

Relevant Coursework: Artificial Intelligence, Robotics, Data Mining & Machine Learning, Probability, OOP, Multivariate Calculus, Discrete Mathematics, Web Information Search & Management, Systems Programming, Statistics, Analysis of Algorithms, Data Structures & Algorithms, Entrepreneurship

Awards: Purdue Vertically Integrated Projects Leadership Award For AIMM ICC Team

Extracurriculars: Machine Learning @ Purdue Project Manager, AIMM Lab ML Team Lead

Experience

SWE @ Capital One | Richmond, VA Incoming Aug 2025

- I will be joining Capital One as an associate software engineer in August 2025 after completing college!

Data Analyst Intern @ BDO Digital | Python, Machine Learning, C#, Data Engineering Jun 2023 - Dec 2024

- Built a synthetic data generator to boost CV model accuracy by 15% to 85% by generating 5k labelled images
- Predicted factory accidents using computer vision, depth estimation, & path prediction algorithms
- Developed an internal application for data labeling, model training, real-time data ingestion & data visualization
- Wrote a Flask API to control a demo factory assembly line, enabling real-time operations & data analysis
- Contributed to GPT-4o RAG chat bot for summarizing, Q&A, & classifying medical/legal documents
- Wrote Python notebooks to manipulate client data into Microsoft Fabric for advanced data reporting & analysis
- Led a team of interns in researching & presenting new business opportunities in AI to upper management

Projects

AIMM ICC Lab | Machine Learning Team Lead | Python, MODT, CUDA, ROS, SLAM Nov 2023 – Present

- Leading 6 person ML team to develop an autonomous boat to compete in navigation challenges
- Trained YOLOv8 on 3k images of buoys for multi-object detection & tracking
- Wrote 35ms RGB-D camera ingestion, object detection, & object localization pipeline on NVIDIA Jetson
- Tracked Buoys using an Extended Kalman Filter w/ Nearest Neighbor Association
- Implemented Point-LIO SLAM using an Ouster OS0 LiDAR & 9-DOF IMU
- Combined LiDAR SLAM, Camera Object Detection, & IMU data to create an occupancy grid for navigation
- Utilized ROS2 Foxy for subscribing & publishing sensor data and occupancy grid
- Co-authored a **Technical Report** outlining the labs developments

Celerity | Solana Trading Platform Developer | Python, MongoDB, Flask, Azure, CI/CD Jan 2024 – Jul 2024

- Solely developed a Solana network trading platform able to execute trades in 200ms @ **celerity.bot**
- Built custom RESTful API wrappers for Jupyter, Dexscreener, CoinGeckoTerminal, & Raydium
- Achieved over 100 MAU as of May 2024 with trading volume exceeding $100k/700SOL
- Created 15 async Flask API endpoints with JWT authentication hosted as Azure Functions
- Maintained an 11.5k line Python code base, concentrating on performance & streamlined documentation

VEX Robotics AI Competition | ACM SIGAI Team Lead | Python, C#, Unity 3D, C Aug 2021 – May 2023

- Team built an autonomous robotic agent able to navigate & compete in the VEX challenge
- Designed reward system & trained an RL agent in a Unity3D simulated environment
- Wrote a protocol in C to connect camera, motors, NVIDIA Jetson, & VEX brain
- Trained YOLOv5 CV model with multiple pre-processing OpenCV filters for enhanced accuracy
- Co-authored **Pac-Man Pete: An extensible framework for building AI in VEX Robotics**

Technical Skills

Languages: Python, C#, SQL, C, Java, C++, Bash

Tools & Platforms: Git, VS Code, Jupyter Notebook, Azure, MongoDB, Google CoLab, UNIX, Docker, GitHub Workflows/Actions, Unity Game Engine, Gazebo, SLAM

Frameworks & Libraries: TensorFlow, PyTorch, Pandas, Numpy, SK-Learn, MatPlotLib, OpenCV, Ultralytics, Flask, Pydantic, Sphinx, OpenAI, Unity ML-Agents, Anaconda, ROS

Last Updated: March 2025