ZAIN-UL-ABIDEEN NASIR

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EDUCATION

Binghamton University Expected May 2024
Master of Science, Computer Science, AI Track | GPA: 3.95/4.00

Binghamton University Dec 2022
Bachelor of Science, Computer Science | GPA: 3.95/4.00

WORK EXPERIENCE

Graduate Research Assistant Jan 2023 - Present
Computer Science Dept., Binghamton University

- Apply deep Q-learning algorithms for map navigation, utilizing two-part neural networks for optimal policy determination
- Design low-latency data pipelines for drone RTSP streams, enabling real-time object detection
- Retrain and evaluate object-detection models in PyTorch to identify plant health in forest environments
- Implement edge-based SLAM navigation techniques for autonomous drones in forest environments
- Integrate network analysis for client-server drone communication, improving latency and eliminating data loss
- Streamline algorithm deployment through Docker containers for increased portability

Teaching Assistant Jan 2023 - Present
Computer Science Dept., Binghamton University

- Supported faculty in classroom management, lecture delivery, and workshop facilitation
- Provided individualized assistance to students, clarifying course concepts, and addressing their questions
- Guided students in setting academic goals and offered career advice for their personal and professional development

Software Development Intern Jun 2022 – Aug 2022
Advertising Specialty Institute

- Extended the design library through 20 reusable frontend components coded in Typescript
- Implemented product-sharing feature in Angular, enhancing conversion rates by 18%
- Incorporated 30 interaction tests in Storybook, improving code quality and eliminating user-interface issues
- Supervised a team of four and developed a webpage for the company networking event

Undergraduate Research Assistant Jun 2021 – Jun 2022
Computer Science Dept., Binghamton University

- Investigated data schemas for time-series stack traces
- Ported application-level energy-awareness framework to Android
- Executed experiments to test energy-awareness on a YouTube session

PROJECT EXPERIENCE

Ball-following Robot Jan 2023 – May 2023

- Designed and implemented a ROS project utilizing OpenCV for ball detection and tracking
- Orchestrated autonomous behavior of a TurtleBot, enabling it to proficiently track and follow a red ball
- Fine-tuned velocity control commands to ensure accurate and seamless ball following

Spotted Lantern Fly Detection Through Drones Mar 2023 – Mar 2023

- Consolidated 1000-image PyTorch dataset and retrained YOLOv8, enhancing its accuracy in identifying spotted lantern flies
- Integrated trained model with a drone for aerial surveillance and real-time video feed analysis
- Conducted rigorous testing, improving accuracy to 90% and reducing false positives/negatives

Autonomous Map Navigation Jan 2023 – Jul 2023

- Utilized FrozenLake environment to experiment autonomous map navigation with deep learning
- Implemented a two-part neural network in PyTorch for generating optimal actions from states
- Established a visualization mechanism, enabling observations of training and testing progress

TECHNICAL SKILLS

- **Languages:** C++, Python, Java, Javascript, Typescript
- **Frameworks & Tools:** PyTorch, Docker, Git, React, Next JS, Nvidia Jetson