

Zain Nasir

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EDUCATION

Binghamton University

Master of Science in Computer Science, Minor in AI

Bachelor of Science in Computer Science

Binghamton, NY

Expected Dec 2024

Dec 2022

WORK EXPERIENCE

Machine Learning Intern

Aug 2023 – Dec 2023

Crerex

Austin, TX

- Implemented deep learning models using PyTorch for image classification, achieving state-of-the-art performance
- Improved data quality through dimensionality reduction techniques for better visualization and pattern analysis
- Engineered rate schedulers in Python, improving convergence speed and training stability of neural networks
- Utilized NumPy and scikit-learn to analyze time-series data from IoT sensors, detecting and avoiding system failures
- Leveraged advanced image processing techniques in OpenCV for image segmentation and edge detection
- Collaborated with quantitative analysts to integrate regression-based market forecasts into investment strategies

Software Development Intern

Jun 2023 – Aug 2023

Cloud Allied

Brooklyn, NY

- Maintained internal tools using C++ and Python, enhancing team productivity by automating repetitive tasks
- Programmed a multi-threaded file processing module in C++, reducing data processing times by 30%
- Integrated third-party libraries into C++ and Python applications, including Boost and Requests
- Created a command-line tool for database accesses, facilitating management of cloud-based applications
- Developed data serialization mechanisms for JSON, enabling efficient data exchange between software components
- Participated in Agile development processes, including sprint planning and stand-ups to deliver products on schedule

Graduate Research & Teaching Assistant

Jan 2023 – Dec 2023

Binghamton University

Binghamton, NY

- Designed low-latency data pipelines for drone video streams with OpenCV, enabling real-time object detection
- Retrained and evaluated object-detection models in PyTorch to identify plant health in forest environments
- Coded edge-based SLAM navigation techniques for autonomous drones in dense outdoor settings
- Adapted SLAM algorithm for CUDA-enabled drone applications via Nvidia Jetson
- Taught lectures on operating systems, and design and analysis of algorithms
- Managed lab sessions, explaining topics such as xv6 kernel hacking, file systems, and scheduling

Software Development Intern

Jun 2022 – Aug 2022

Advertising Specialty Institute

Trevose, PA

- Extended the design library through 20 reusable frontend components coded in Typescript
- Devised product-sharing feature in Angular, enhancing conversion rates by 18%
- Incorporated 30 interaction tests in Storybook, improving code quality and eliminating user-interface issues

Undergraduate Research Intern

Jun 2021 – Jun 2022

David Liu, Binghamton University

Binghamton, NY

- Constructed an energy-profiling framework for Android systems
- Customized Protocol Buffers to serialize energy data and generate method-based energy usage
- Executed experiments to test energy-awareness on mobile apps, such as YouTube

PROJECTS

Ball-tracking Robot: Object detection & tracking in ground-robots with ROS and OpenCV

Spotted Lantern Fly Detection through Drones: Real-time aerial pest and disease detection with PyTorch

Autonomous Map Navigation: Reinforcement learning-based map navigation in dynamic game environments

TECHNICAL SKILLS

Languages: C/C++, Python, Java, Javascript, Typescript, HTML/CSS

Libraries & Developer Tools: OpenCV, Pytorch, Pandas, NumPy, Matplotlib, Docker, Git, Nvidia JetPack

AI: Natural Language Processing, Generative Networks, Deep Networks, Reinforcement Learning, Computer Vision