Zain Nasir

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Education

Binghamton University — Binghamton, NY
Master of Science in Computer Science, Minor in AI — *Expected Dec 2024*
Bachelor of Science in Computer Science — *Dec 2022*

Work Experience

Machine Learning Intern — Aug 2023 – Dec 2023
Crenex — *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 Assistant — 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