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Trishal Muthan

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EDUCATION

University of Virginia, **School of Engineering and Applied Sciences** Charlottesville, VA
Bachelor of Science, Computer Science (GPA: 3.96) *Aug 2022 – May 2025*
Relevant Coursework: Data Structures and Algorithms, Computer Systems and Organization. Software Engineering, Discrete Mathematics and Theory, Linear Algebra, Probability, Data Science and Statistical Analysis

EXPERIENCE

Software Engineering Intern, *BTI360 (Herndon, VA)* *May 2024 – Aug 2024*
- Developed custom knowledge graph by extracting and connecting entities from web-scraped news articles to reveal real-world relationships between people, places, and organizations
- Engineered data transformation pipeline leveraging Python and AWS services (Lambda, S3, SQS, SNS) to identify entities from text and build knowledge graph in AWS Neptune database
- Implemented high-performance REST API with SpringBoot, Java, and AWS services (EC2, ECS, ECR), facilitating efficient access into knowledge graph to serve data to front-end service
- Designed engaging user interface using Angular, HTML, CSS, and TypeScript, enabling users to easily search for entities and visually explore properties, connections, and relevant news articles

Software Engineering Intern, *ST Engineering iDirect (Herndon, VA)* *May 2023 – Aug 2023*
- Extracted critical data including warnings and usage from company hardware and displayed data to product UI alongside information and logs using Python, Grafana, and Bash scripting
- Leveraged Docker, Kubernetes, Ansible, and Bash scripting to containerize and deploy features onto OpenShift cluster, enhancing team efficiency in supervision and maintenance of hardware
- Configured CI/CD pipelines allowing for efficient deployment of upcoming features onto Kubernetes clusters
- Debugged and resolved network issues between servers, switches, and development VMs, enabling multiple teams to continue development without interruptions

Machine Learning Research Assistant, *University of Virginia* *Aug 2022 – May 2023*
- Implemented random forest classifier to classify sensory neuron recordings by emotional intention using Python, Scikit-Learn, NumPy, Pandas, and Matplotlib
- Utilized computer vision libraries to process and analyze images of neuron firings when individuals are exposed to various forms of physical touch

Algorithmic Fairness Research Assistant, *Cornell University* *Jun 2021 – Sep 2021*
- Analyzed emergent biases of specific types of machine learning models upon application to recidivism, hospital readmission, and loan-giving datasets with Python and Keras
- Investigated effectiveness and value of popular fairness and disparity metrics using R
- Developed and proved algorithm to identify sibling pairs in a binary-bifurcating tree data structure

PROJECTS

Real-Time Vehicle Classification System *Aug 2021 – Jun 2022*
- Designed vehicle image classification system using Python, TensorFlow, Keras, NumPy, and Sci-Kit Learn
- Optimized original YoloV3 and Inception-based convolutional neural network architectures to classify images into 196 types of vehicles and store classification data in real-time with MySQL

SeniorShield *Mar 2021 - Apr 2021*
- Built mobile application using Swift, Firebase, and Raspberry Pi to alert cognitively impaired individuals whether people sensed and recorded by doorbell camera are safe or strangers
- Architected facial recognition models and comparison algorithms using Python, OpenCV, and Sci-Kit Learn

SKILLS

Languages: Python, Java, C++, JavaScript, TypeScript, HTML, CSS, C, R, SQL
Frameworks and Libraries: Django, Spring, Flask, Angular, React, Node, Tailwind CSS, TensorFlow, PyTorch, Keras, NumPy, Sci-Kit Learn, Pandas, JUnit, Jest, Pytest
Tools and Technologies: AWS, Linux, Git, Bash Scripting, Gradle, Docker, Kubernetes, MySQL, PostgreSQL, Elasticsearch, CI/CD, Jira