

Adith Tom Alex

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EDUCATION

Drexel University

BS in Computer Science, BA in Philosophy

Philadelphia, PA

Sept. 2022 – Present

EXPERIENCE

ML Research Intern

Zoho Corporation

Sept. 2024 – Present

Chennai, India

- Developed an RNN implementation with PyTorch, combining GRUs and residual connections for keyword spotting on edge devices, optimized for resource constraints
- Reduced model size by up to 3x (60 KB) while maintaining similar performance compared to state-of-the-art Temporal Convolutional Networks (TCNs) through quantization and pruning
- Optimized deployment for edge devices, leading to significant memory efficiency improvements for real-time keyword detection

Software Validation Engineer

Cornelis Networks

Sept. 2023 – Mar. 2024

Philadelphia, PA

- Developed and executed Python test cases for network switches in high-performance computing environments, boosting testing efficiency by 25% and enhancing benchmarking accuracy
- Diagnosed and resolved over 30 critical defects in network switches and back-to-back systems on Unix, reducing downtime by 20% and ensuring system reliability
- Collaborated for transfer of validation base from OPA100 to CN5000 boards, leveraging Python scripting to streamline the testing process and achieve smooth transition

PROJECTS

MARLBrowse

Aug. 2024 – Present

- Designed and implemented a multi-agent drone system using SAC, achieving autonomous mapping, object tracking, and collision avoidance with 90% accuracy in simulation tests
- Implemented and containerized a hierarchical global path planner for privileged learning for high speed flight
- Leveraged ROS, Isaac Sim, and PyTorch to train multi-agent reinforcement learning (MARL) algorithms for real-time SLAM and target tracking using CNNs, enabling cooperative exploration of unknown environments
- Integrated PX4 with NVIDIA Jetson for sim-to-real transfer, achieving real-time autonomous drone performance

SentinelAI | Most Innovative Hack at DragonHacks 2023

Apr. 2023

- Developed a YOLOv7-based weapon-detection system with 92% accuracy for real-time detection of weapon draws
- Set up an embedded system camera linked to a local server, processing frames at 22 FPS and sending instant alerts via Twilio, reducing response time by 30%
- Built a cross-platform mobile app using Flutter, integrating Firebase to ensure reliable data transfer and real-time alert notifications

Smartbites

Mar. 2023

- Developed a decentralized food delivery app using Ethereum, reducing delivery fees by up to 30% by eliminating third-party intermediaries
- Engineered automated payment processing triggered by QR code scanning at delivery, ensuring instant transactions
- Integrated iExec and YOLOv7 for blockchain-based video monitoring, to reduce incidents of porch piracy

TECHNICAL SKILLS

Languages: Python, C++, CUDA, Rust, JavaScript, HTML, CSS, Bash

Technologies: PyTorch, Docker, ROS, Gazebo, AWS, Linux, Git, Selenium, Android Studio, Firebase, Flutter

ACTIVITIES

Moder Patshala, Volunteer Tutor

Jan. 2024 – Present

Pi Lambda Phi Fraternity, Member

Dec. 2023 – Present

DragonHacks 2023, Most Innovative Hack and Creative Use of Twilio

Apr. 2023

Drexel Engineers Without Borders, Tech Team Developer

Apr. 2023 – Present