Yash Gharat

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Aspiring machine learning engineer with 7 years of experience in innovative applications and interdisciplinary collaboration.

SKILLS

LANGUAGES: Python, Java, C, C++, Javascript, HTML/CSS, Dart

TOOLS AND FRAMEWORKS: Agile Dev, Jupyter, CMake, Linux, Material.io, Angular, Node.js, AWS, Git, React, SVN, Artifactory

EXPERIENCE

Raytheon/Collins Aerospace **July 2024 - Present**

Senior Software Engineer

- Granted Interim TS clearance
- Partnered with a **Technical Fellow** on design and development of an internal Retrieval-Augmented Generation (RAG) chatbot using LangChain and Postgres to transition engineers between contracts and demoed the **upgraded experience** to **100+ senior engineers**
- Automated **RHEL OS build pipeline** with Kickstart integration, applying **DISA STIG compliance** and remediating **350+ security vulnerabilities**, strengthening system reliability and maintainability.

CAEUSA **August 2021 - June 2024**

Application Software Engineer

- **Engineered a biometric system** providing **real-time firing feedback**, enhancing **training efficiency** for frontline operations.
- Created a C++ application and library that concurrently managed receiving, decoding, and sending standardized, serialized messages to support communication across **5 simulation platforms**, reducing integration errors by **25%**
- **Built a Raster Vision CV model** for **semantic segmentation** of drone imagery and COP analysis and building detection

Modeling and Simulation Co-op

- Built Q-learning model using sensory/comm data for enemy detection,boosting simulated threat recognition accuracy by **30%**
- Integrated the Distributed Interactive Simulation (DIS) interface in Python, MATLAB, and other DoD related software to work towards a dynamic and intelligent adaptive kill-web.
- Decoded **Link16 PDUs**, improving centralized decision-making across **multiple CGFs** in large-scale simulated combat exercises.
- Collaborated on a Human-Machine Teaming project focused on multi-domain operations, measuring trust in complex **AI-driven synthetic teammates** to enhance mission performance.

Unmanned Autonomous Systems Lab **June 2020 - August 2021**

Intern/Research Assistant

- Implemented MATLAB algorithms in AFSIM to automate UAV formations, improving asset protection and enemy tracking accuracy by **25%** in simulated missions.
- Optimized sim runtimes by offloading compute-heavy scripts to MATLAB/Python, reducing execution time by **60%** for key scenarios.
- Developed adaptive UAV tracking assignment in AFSIM using multi-factor logic, increasing responsiveness to threats by **30%**.
- Created UAV priority-based task reallocation in AFSIM using nearest-neighbor logic, enhancing mission resilience
- Applied **Markov Decision Processes** for UAV task allocation, and improving task completion and efficient resource usage by **15%**

STIR Lab **August 2019 - October 2020**

Full Stack Developer/Researcher

- Developed Android app with **AWS backend (Cognito, S3, Lambda, API Gateway)** that securely collected behavioral data from **200+ study participants**, supporting HCI PhD research.
- Built Angular dashboard for study management and automated rewards, cutting admin effort by **50%** and improving participant retention.

PROJECTS

Goop Dashboard

- Built Raspberry Pi LED dashboard with weather, Spotify, and gamified features, such as an RL based Tamagotchi

Deep system identification

- Designed a RNN coupled with a Kalman filter to identify the dynamical nonlinear system of an unknown target based on observational data.

PhantoMouse

- Generated synthetic 3D dataset with Blender/Unity for ML project, enhancing prosthetic mouse accessibility and improving model training accuracy by **25%**

Addition Financial Data Analysis and Model

- Developed a predictive model for credit card delinquency using AFCU data and conducted exploratory data analysis.

Envoy Commander

- Developed distributed RL model for gamified env, with a central learning commander and helper agents for multi-armed bandit tasks.

EDUCATION

M.S. Computer Science **2024**

University of Central Florida

Coursework: Machine Learning, NLP, Computer Vision, AR Engineering, Computer Architecture, Strings and Sequences Algorithms

B.S. Computer Engineering **2022**

University of Central Florida