

Arden Matikyan

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Education

Master of Engineering in Software Engineering, University of Maryland, College Park, MD

(Dec 2025)

Bachelor of Science in Computer Engineering, University of Maryland, College Park, MD

(2020-2024)

Work Experience

Software Engineering Intern - LMI

(June 2025 - Aug 2025)

- Built an end-to-end voice transcription solution by evaluating ML models and deploying **OpenAI's Whisper** locally within a containerized **Docker** environment.
- Developed a **RESTful API** using **FastAPI** framework to expose transcription services and ensure seamless integration with existing system components.
- Extended **legacy codebase** with **TypeScript, HTML, and SASS** to implement audio recording interface, MP3 file upload functionality, and automated voice-to-text workflows with PDF export capabilities.

Software Development Intern - FINRA

(June 2023 - Aug 2023)

- Increased **unit test** coverage by 4.5% for the back-end notifications service by writing and refactoring test cases.
- Developed and deployed an automated onboarding workflow in **Python**, integrating with internal APIs to streamline account setup and reduce manual input errors by over 30%.
- Optimized data queries and structure in **SQL (pgAdmin)** by analyzing field usage and indexing patterns, enhancing data retrieval efficiency and maintainability.

Software Engineering Intern - Thales Defense & Security

(June 2022 - Aug 2022)

- Automated firmware updates/downgrades in **C++** for military-grade SATCOM systems, improving testing efficiency and accuracy.
- Developed a dynamic, real-time graph in **JavaScript** to visualize signal strength changes, enhancing user experience and operational insights.

Projects

Adaptive Game Agent for Ashta-Chamma - <https://github.com/arden-matikyan/ReinforcementLearning>

- Collaborated with a team to design and develop a **reinforcement learning (RL)** agent capable of adapting to varying opponent strategies in a board game, Ashta-Chamma, utilizing **deep learning** frameworks.
- Implemented and fine-tuned **Proximal Policy Optimization (PPO)** and **Deep Q-Networks (DQN)** algorithms to enable dynamic decision-making in high-dimensional state spaces, optimizing policy gradients and value functions for strategic gameplay.
- Designed a custom RL environment using the **OpenAI Gym** framework and **Python**, programming game mechanics with multiple opponent behaviors, including aggressive, defensive, and stochastic strategies for robust agent training.

Embedded Face Detection System (Capstone Project) - <https://github.com/arden-matikyan/AdaBoost-Face-Detection-ML>

- Led a team of three to design and develop an embedded face detection system using the **Viola-Jones algorithm** and **AdaBoost** in **C++**, achieving 95% accuracy across 4,000 sample images.
- Streamlined development with **Bash** scripting, creating automated **test suites** for efficient testing.
- Deployed the system on a virtual **Raspberry Pi**, demonstrating real-time performance in a **lightweight dataflow** environment.

CIFAR-10 Image Classification System

- Implemented multiple **neural network** architectures from scratch in **PyTorch**, achieving 70%+ accuracy on the CIFAR-10 dataset through systematic experimentation with **CNN** designs and hyperparameter optimization.
- Built core deep learning components, including vectorized backpropagation, batch/layer normalization, and dropout regularization, demonstrating deep understanding of neural network fundamentals.
- Compared performance across various **optimizers** (SGD, Adam, RMSprop) and regularization techniques, analyzing training dynamics and convergence patterns to optimize model performance.

Skills

Technical: Python, Java, C++, C, JavaScript, MatLab, HTML/CSS, SQL, NoSQL, TensorFlow, GoLang, Algorithms, Data Structures

Tools/Practices: Git, Docker, Linux CL, AWS, Agile/Scrum, Secure Coding, Unit Testing, RESTful APIs, PostgreSQL, CI/CD, Database Design