Asmaa Abdul-Amin

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Summary

Clearance: Active Secret

Analytical and mission-focused engineer specializing in **software systems, automation, and data integration**. Experienced supporting **aerospace and defense missions** at the Johns Hopkins University Applied Physics Laboratory (APL), developing **Python-based automation, backend APIs, and data infrastructure** for **NASA and DoD-aligned projects**. Interested in advancing **mission-critical** defense, aerospace, and embedded systems programs through **secure, scalable engineering solutions**.

Experience

Computer Science/Computer Engineering Intern – Pathways Program
The Johns Hopkins Applied Physics Laboratory – Space Exploration Sector | May 2025 – Present

- Continuing to fortify and **optimize Space Sector web infrastructure**, boosting reliability by ~30% and ensuring compliance across 15+ NASA mission platforms.
- **Automated Python + SQL workflows**, cutting data processing time by 40% and saving analysts 10+ hours weekly.
- Partnered with engineering, compliance, and communications teams **to deliver scalable systems** with **zero critical security findings.**
- Collaborated with cross-functional teams and **presented findings to stakeholders**, ensuring data-driven solutions aligned with mission and business needs

Software & Web Infrastructure Intern – ATLAS Program
The Johns Hopkins Applied Physics Lab – Space Exploration Sector | May 2024 – May 2025

- Developed **Python automated ETL pipelines** to **automate file format conversion,** strengthening **requirements traceability** and **system interoperability** across mission platforms supporting 100+ engineers, demonstrating skills in **data ingestion, transformation, and orchestration** for high-frequency environments.
- Continued to support **web infrastructure modernization** efforts across multiple mission platforms, ensuring secure, scalable, and compliant backend operations.

Undergraduate Research Intern – CIRCUIT Program
Johns Hopkins APL – Research & Exploratory Development Department | Mar 2023 – May 2024

- Engineered and **deployed multiple webpages for the NASA** Dragonfly internal portal, streamlining access to critical mission resources and improving collaboration efficiency.
- **Built ML model analyzing COVID-19 policies vs. mortality**, improving interpretability of public health data.

Projects

- **AlphaGoat – GAN-based market simulator** with a **reinforcement-learning trader** that generates realistic 1-minute stock data and trains a DQN agent for long/flat/short decisions on live Alpaca feeds.
- **Algo-bot Trading Assistant** – Real-time trading system using **Flask**, **WebSockets**, and the **Alpaca API** for live portfolio analytics and execution.
- **CryoET Object Identification** – **Trained PyTorch deep learning models** for 3D protein detection, improving recall in high-dimensional biomedical datasets.

Education

A.A. Computer Science – Montgomery College (Expected Dec 2025)
Focus: Data Analysis, Machine Learning, and Algorithmic Systems, Python Programming

Certifications:

- The Johns Hopkins University Applied Physics Laboratory – Python Programming II (2025)
- Univ. of Chicago – *Quantum Computing Systems Design I* (2024)
- IBM – *Machine Learning with Python* (2023)
- Harvard – *CS50 Intro to Computer Science* (2022)

Skills

- **Languages**: Python (pandas, NumPy, scikit-learn), SQL, C++, Java, HTML/CSS, JavaScript
- **Libraries & Tools**: Flask, REST APIs, Docker, Git, Linux, Jupyter, Kubernetes, Terraform
- **Analytical & ML Tools**: Alpaca API, Backtrader, yfinance, Qiskit, PyTorch, TensorFlow
- **Data & Automation**: ETL pipelines, CI/CD, HPC/cluster computing, statistical analysis

Additional

- Languages: Arabic (C1 – Advanced)