

Asmaa Abdul-Amin

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Summary

Clearance: Active Secret

Analytical and mission-focused engineer specializing in **web development**, **software systems**, **automation**, and **data integration**. Experienced with supporting aerospace missions at the Johns Hopkins University Applied Physics Laboratory (APL). Interested in advancing mission-critical software systems through secure, scalable engineering solutions.

Experience

Computer Science/Computer Engineering Intern – Pathways Program

The Johns Hopkins Applied Physics Laboratory – Space Exploration Sector (**SOF-2**) | May 2025 – Present

- Continuing to fortify and **optimize Space Sector web infrastructure**, boosting reliability by **~40%** and ensuring compliance across **15+** NASA mission platforms.
- Automated Python + SQL workflows**, cutting data processing time by **60%** and saving analysts **15+** 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 – SES/SOF-2 | May 2024 – May 2025

- Contributed to an **automated ETL pipeline** for file format conversion (**IRAD**), **strengthening requirements traceability** and system interoperability across mission platforms supporting 100+ engineers, demonstrating skills in **data ingestion**, **manipulation**, and **orchestration** for high-frequency environments.
- Continued to support the enhancement of **APL 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 (R1N) | Mar 2023 – May 2024

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

[DeepStock](#) – **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.

[QuantumQuant](#) – **Real-time trading system** using **MongoDB**, **WebSockets**, and the **Alpaca API** for live portfolio analytics and execution.

[CryoET](#) – Trained PyTorch **deep learning models for 3D protein detection**, improving recall in high-dimensional biomedical datasets.

[The Cost of Democracy](#) – **Analysis of product price fluctuations across election cycles** revealing trends in consumer costs, inflation, and market response.

Education

B.S. Data Science – University of Maryland Global Campus (Expected Dec 2028)

Focus: Data Analysis, Machine Learning, and Algorithmic Systems, Python Programming

A.A. Computer Science – Montgomery College

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
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Additional

- Languages: Arabic (C1 – Advanced)