

Rakan Abu Awwad

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EDUCATION

Virginia Polytechnic Institute and State University (Virginia Tech)

Expected: May 2027

M.S. in Software Development & Applications — GPA: 4.00/4.00

B.S. in Computer Science

Aug 2021 – May 2025

Relevant Coursework: Network Security, Cloud Computing, AI Tools for SWE, Operating Systems

Leadership & Involvements: VP of Finance (Delta Upsilon Fraternity), Hackathon Participant (HackViolet & MLH)

TECHNICAL SKILLS

Languages: Python, Java, JavaScript, SQL, TypeScript, C

Databases: MySQL, PostgreSQL, MongoDB, DynamoDB

Tools & Technologies: React, Next.js, Node.js, Flask, FastAPI, HTML, CSS, Microservices, AWS (S3, EC2), Docker, Git, GitHub Actions (CI/CD), Linux, Data Structures & Algorithms, Object-Oriented Programming, Agile, Critical Thinking

WORK EXPERIENCE

Technical Analyst & Developer Intern

June 2026 – Present

Virginia Tech, Greater Washington D.C. Area (GWDC) — Alexandria, VA

- Architected a centralized asset management platform serving 60+ users across multiple Virginia Tech departments, eliminating manual inventory/asset checks and the duplicate data entry that plagued legacy Excel workflows
- Led cross-departmental requirements analysis to design a normalized relational database schema around stakeholder pain points, leveraging AI to analyze asset data and accelerate decision-making
- Engineered features including role-based section views, a pending-requests dashboard for each department's outstanding actions, room/building filtering, and configurable required vs. optional fields

Graduate Research Assistant

Aug 2025 – Apr 2026

Virginia Tech, Dept. of Computer Science, Blacksburg, VA

- Led development of a Chrome Extension using JavaScript, Manifest V3 front-end and local Flask backend, implementing a zero-external-transmission pipeline that ensures sensitive data never leaves the user's device, with on-device inference under 100ms
- Engineered a hybrid ML inference pipeline combining PyTorch, Hugging Face Transformers, and TinyBERT with a regex-based rules engine for real-time sensitive data detection, achieving 93.7% accuracy
- Built a 10,000+ synthetic email dataset using Faker and GPT-4 prompt engineering to address the scarcity of labeled data, enabling supervised fine-tuning of TinyBERT for high-accuracy on-device inference

Software Engineering Intern

Aug 2024 – Dec 2024

Virginia Tech Marketplace, Remote

- Contributed to an open-source project for students to post and review local places, serving 10+ users
- Built a responsive multi-page frontend using Next.js and React with optimized routing, reducing redundant data fetching and improving perceived load performance
- Developed a full-stack review system and JWT-based auth restricted to verified .edu emails via FastAPI and PostgreSQL, securing backend access and enabling verified user feedback

Software Engineering Intern

Jun 2023 – Aug 2023

Rubu Al-Quds Technology, Amman, Jordan

- Designed and deployed 15+ RESTful API endpoints using FastAPI (Python), PostgreSQL, and Docker for inventory and order management microservices, handling 10,000+ daily requests across a 5,000+ product catalog on a scalable, fault-tolerant distributed backend
- Optimized PostgreSQL database performance through strategic indexing, query refactoring, and SQL tuning, reducing latency by 40% and improving system throughput, fault tolerance, and reliability at scale
- Implemented JWT authentication and role-based access control (RBAC) across 10+ secured endpoints using FastAPI Security and PyJWT, enforcing data integrity and reducing inventory discrepancies by 60%

PROJECTS

Car Dealership Management System | americanautosalesvirginia.com

Dec 2025

- Architected and deployed a full-stack dealership platform (Next.js, Node.js, Express, MySQL) with dynamic inventory browsing, server-side rendering (SSR), and real-time search/filtering across 100+ listings, serving 2,500+ users
- Built a secure admin dashboard with JWT auth and role-based access control (RBAC) for end-to-end listing management, integrating Cloudinary and AWS S3 for media storage and deploying via Vercel with CI/CD