

Rakan W. Abu Awwad

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EDUCATION

Virginia Tech | Blacksburg, VA

Aug 2025 – Present

M.S. in Computer Science

CGPA: 4.00/4.00

Expected Graduation: **May 2027**

- **Concentrations:** Software Development & Applications
- **Related Coursework:** Machine Learning, Intro to database management, Web Application Development, Usability Engineering, AI Tools for Software Engineering, Fundamentals of Info Security

Virginia Tech | Blacksburg, VA

Aug 2021 - May 2025

B.S. in Computer Science

CGPA: 3.23/4.00

- **Honors:** 3x Dean's List: Spring 2024, Fall 2024, Spring 2025

TECHNICAL SKILLS

Languages: Python, JavaScript, Java, SQL

Backend: Node.js, Express, Flask, Django, RESTful APIs, JWT Authentication, Middleware, Input Validation

Databases: MySQL, PostgreSQL, MongoDB | Query Optimization, Indexing, Normalization

Frontend: React, Next.js, HTML5, CSS3, Responsive Design

DevOps & Tools: Docker, Git, GitHub Actions (CI/CD), AWS, Linux, Postman, Vercel

Concepts: Data Structures & Algorithms, System Design, OOP, Testing (pytest, Jest), API Security



WORK EXPERIENCE

Software Engineer Intern – **7boys**, Amman, Jordan

Jun 2023 – Aug 2023

- Developed 15+ RESTful APIs using Python/Django and PostgreSQL, processing 10,000+ daily requests
- Optimized database performance 40% through indexing and normalization, reducing query time 250ms to 150ms
- Built JWT authentication with role-based authorization securing 20+ endpoints across 3 permission levels
- Reduced inventory errors **60%** implementing atomic transactions for concurrent operations

PROJECTS

Email Sensitivity Detector | Python, Flask, TinyBERT, Chrome Extension, Machine Learning

- Built Flask API with 99.7% PII detection accuracy and <100ms latency using fine-tuned TinyBERT on 10,000+ synthetic emails grounded in GDPR/HIPAA regulations
- Developed hybrid pipeline combining ML inference with regex validation, reducing false positives by **25%**
- Created Chrome extension with real-time analysis, debounced listeners, and fuzzy text highlighting

Car Dealership Management System | Node.js, Express, React, MySQL, Docker, JWT

- Built full-stack platform with 20+ API endpoints serving 500+ vehicles with sub-200ms response times
- Designed normalized MySQL schema (12 tables) with strategic indexing and ACID-compliant transactions
- Developed React frontend with custom hooks, Context API, real-time updates, and role-based UI rendering
- Implemented JWT authentication with bcrypt hashing, containerized using Docker for rapid deployment



Auto Sales Platform | Next.js, MongoDB Atlas, Cloudinary, Vercel

- Built full-stack automotive e-commerce platform using Next.js and React, implementing server components and server actions for optimized performance, reducing page load times by **40%** through Cloudinary CDN integration
- Built secure admin dashboard with complete CRUD operations using Next.js Server Actions and MongoDB, enabling real-time inventory management with bcrypt authentication and comprehensive security
- Developed custom analytics system tracking site visits and vehicle engagement metrics with MongoDB storage
- Implemented Nodemailer-based lead generation system for buyer-dealership communication

PUBLICATIONS

Kong, C., Abu Awwad, R., Meyer, J., Houston, C. "Classification of Email Sensitivity"

Dec 2025

ACTIVITIES

Virginia Tech App Team | Blacksburg, VA

Aug 2025 - Present

- Develop and maintain features for a large-scale open-source application as part of a collaborative student engineering team

Hackathon Participant & Team Contributor | HackViolet and MLH

- Participated in a hackathon, gaining hands-on experience in teamwork, problem-solving, and rapid development.