

Ahmad Kassem

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Education

Lebanese University, Faculty of Science Branch 3 – BS in Computer Science

Jul 2026

Relevant Coursework: Data Structures & Algorithms, Operating Systems, Software Engineering, Database Architecture, Computer Networking, Cybersecurity, Artificial Intelligence.

Skills

Programming Languages: Python , Java , C/C++ , C# , JavaScript , PHP , SQL.

AI, ML & Data: PyTorch , Scikit-Learn , Pandas , Matplotlib , NumPy , Hugging Face.

Backend & Systems: Node.js , Express.js , .NET/ASP.NET , REST APIs , MPI , OpenMP , POSIX API.

Frontend & Mobile: React , Android SDK , Bootstrap.

Databases: PostgreSQL , Oracle 12c , SQL Server , MySQL , SQLite.

Cloud & DevOps: AWS , Docker , Git/GitHub Actions , Linux.

Language skills: Arabic (Native) , English (Fluent) , French (Intermediate).

Experience

Machine Learning Engineer Intern | [FlyRank AI](#) | Remote Internship, US

Jul 2026 – Present

- Developed a Python scoring pipeline (pandas, scikit-learn, DuckDB) on a 79M-row warehouse, improving Precision@50 from 0.24 to 0.74 (3.1x lift) over baseline rules (ROC-AUC: 0.75).
- Engineered 44+ features with strict client-holdout validation (70+ clients); built a ranked review queue with automated reason codes to reduce editorial waste.
- Published an internal deployed research paper detailing methodology, signal audits, leakage checks, and actionable recommendations across 30K+ scored pages.

AI Tech Fellow | [LebNet](#) | Remote Fellowship, US

Jun 2026 – Present

- Built PyTorch logistic regression from scratch with sigmoid activation, BCE loss, and gradient descent. Conducted a 6-rate learning-rate ablation study to analyze convergence and hyperparameter sensitivity.
- Developed a 4M-parameter decoder-only GPT from scratch in PyTorch (8k tokenizer, causal self-attention, 3-layer residual blocks) trained on a 10M-character corpus. Fine-tuned Qwen3-0.6B via LoRA on 1k Arabizi examples.
- Engineered a Scikit-Learn Random Forest pipeline on an 8.6k-sample, 22-feature dataset with intentional train-test distribution shift. Achieved 89.4% accuracy.

Projects

Distributed AI Network IDS | C, MPI, OpenMP, Machine Learning

- Engineered a distributed intrusion detection system in C utilizing MPI and OpenMP, analyzing 500,000+ network packets in under 0.03 seconds and achieving a 3.0x parallel processing speedup.
- Implemented an unsupervised K-Means++ clustering algorithm within a 4-phase distributed pipeline, utilizing custom MPI datatypes to automatically classify threat patterns with zero data loss.

Bella Vista — Enterprise Order Processing API | Node.js, Oracle 12c, JavaScript

- Engineered a full-stack web platform driven by a Node.js/Express.js REST API to streamline core business operations, reducing order processing latency by 40%.
- Architected a 3NF-normalized Oracle 12c database with custom RBAC, ensuring strict data segregation across 3 distinct user tiers (Admin, Staff, Customer).

RestoApp — Secure Enterprise Resource Planning | C#, ASP.NET, SQL Server, Bootstrap

- Engineered a full-stack enterprise web application utilizing C#, ASP.NET, and a scalable Repository Pattern architecture, centralizing end-to-end restaurant operations and reducing query execution latency by 45%.
- Architected a secure SQL Server database and authentication flow, implementing BCrypt hashing, HMAC-SHA256 tokens, and parameterized queries, securing over 25 core API endpoints and eliminating SQL injection vulnerabilities.

Student Information System | PHP, MySQL, MVC Architecture

- Built an MVC-compliant dynamic web application utilizing PHP and MySQL, digitizing records for over 500 student profiles and reducing manual workflow steps by 50%.
- Hardened backend database interactions against SQL injection vulnerabilities by universally implementing secure PDO prepared statements, achieving 90% compliance with OWASP database security standards.

Native Android Dining Explorer | Java, Android SDK, SQLite

- Developed a native Android application utilizing MVVM architecture, ensuring a responsive user interface that maintained a smooth 60 FPS rendering performance during heavy list scrolling.
- Engineered a modular, swappable data layer with SQLite and in-memory caching, decreasing average data retrieval times by 60% for frequently accessed restaurant profiles.

Leadership & Volunteer Experience

Computer Science Student Delegate | Lebanese University, Faculty of Science Branch 3 | Lebanon 2024 – 2026

- Represented a cohort of 300+ Computer Science students, acting as the primary faculty liaison to successfully advocate for student needs and resolve over 30 academic or scheduling conflicts per semester.
- Spearheaded the planning and execution of 3+ university technical workshops and academic initiatives.