

Omar Ghabayen

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EDUCATION

Carnegie Mellon University

M.S. in Electrical & Computer Engineering

Pittsburgh, PA

Expected May 2027

Carnegie Mellon University

B.S. in Electrical & Computer Engineering

Pittsburgh, PA

Dec 2025 — GPA: 3.3/4.0

EXPERIENCE

Carnegie Mellon University — Applied Generative AI Lab

Nov 2025 – Present

Research Assistant

Pittsburgh, PA

- Architecting a **neuro-symbolic autograder (LLM-as-a-compiler)** that translates assignment specs into **symbolic checks** and runs deterministic verification to prevent hallucinated grading.
- Building a sandboxed evaluation pipeline (**Docker**) and co-authoring an architectural walkthrough toward publication (correctness, reproducibility, safety constraints).

American Express

May 2025 – Sep 2025

Software Engineer Intern

New York, NY

- Engineered a **Spring Boot** service for time-travel replay of account events to regenerate balances at any timestamp, improving auditability and shortening incident triage for partner teams.
- Deployed a dual-mode ledger (end-of-day batch and point-in-time) that preserved reporting parity during a major migration and reduced risk to downstream analytics.
- Built a **React** ledger drill-down that traces each balance change to its originating transaction, reducing support escalations by 12%.

Asl Al-Uroba (Almanasa Platform)

Dec 2023 – May 2025

Software Engineer (Contract)

Remote

- Architected a high-throughput live polling backend on **.NET/C#**, sustaining ~15,000 peak msgs/sec while maintaining <200 ms leaderboard read delay via decoupled ingestion and batched aggregation.
- Orchestrated event-driven ingestion with **RabbitMQ** (durable queues, competing consumers, manual acks) and backpressure (prefetch/QoS), enabling safe **resumption after disconnects** without double counting via **idempotent de-duplication**.

CMU CS Academy

Dec 2022 – May 2023

Software Engineering Intern

Pittsburgh, PA

- Built a **Python** tool that parses submissions with **BeautifulSoup** and automates routine grading tasks, reducing grading time by ~70%.

PROJECTS

Remit-Scout | AWS (Lambda), ClickHouse, RabbitMQ, Django, Redis, Supabase

15,000+ Users | 5,000 MAU

- Architected a “**Truth Engine**” lakehouse using **AWS Lambda** and **ClickHouse**, ingesting and normalizing 20+ provider quotes into **Bronze/Silver/Gold** layers for auditability, replay, and corridor analytics.
- Engineered an event-driven ingestion pipeline with **RabbitMQ** and **circuit breakers/timeouts**; enforced an **N≥3 provider** safety rule and derived-data boundaries to prevent raw provider leakage and rate-limit bans.
- Delivered sub-3s median aggregation and <100 ms repeat queries via **Redis cache jitter** and pre-warmed corridors; scaled to 15k+ users / 5k MAU.

TECHNICAL SKILLS

Languages: C++20, Python, Java, C#/.NET, JavaScript/TypeScript, SQL

Frameworks: Spring Boot, Django, React, Angular, ASP.NET Core

Data/Infra: AWS (Lambda), ClickHouse, RabbitMQ, Redis, PostgreSQL, Supabase, Kafka