

# Ahmed Saber Rajab

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## Summary

Fresh Computer Science graduate and backend engineer focused on Node.js and PostgreSQL. Former competitive programmer who loves problem solving and deep fundamentals .

## Skills

**Languages:** JavaScript (Node.js), C++, Go, Java, Python, SQL.

**DevOps:** Docker, GitHub Actions, Linux, AWS (basic), Kubernetes.

**Fundamentals:** Algorithms, Data Structures, OOP, Databases, Compiler, RESTful APIs, Microservices, CI/CD, Agile.

## Work Experience

### Backend Engineering Intern

*Banque Misr* — Aug 2024 – Sep 2024

- Built and deployed a Spring Boot backend for banking operations (account, transaction, and customer APIs).
- Implemented reliable transaction handling and input validation; added integration tests for key endpoints.

## Projects

### Signify (Graduation Project)

[GitHub](#)

AI-powered app bridging sign language and spoken/written language.

- Designed and implemented an advanced feature extraction pipeline using OpenCV, reducing processing time by 40% and streamlining the workflow for future data preprocessing tasks.
- Built Node.js backend for model inference, user authentication, and data flow between mobile client and model server.
- Used PostgreSQL for user management and translation history; designed schemas and indexed frequent queries.

### Custom WebSocket Protocol

[Live Demo](#)

RFC 6455-compliant implementation written from scratch in Node.js.

- Implemented handshake, framing/masking, ping/pong, and full-duplex messaging without external libraries.
- **Memory-friendly large messages:** Developed logic to pause producers when send/write returned false, resuming on drain/close; increased message throughput by 10% by optimizing memory allocation for message queues.
- Correctly handled fragmentation up to **1 MiB+** per message; verified with an interactive real-time dashboard and benchmarks.

### Omani Programming Language

*Personal Project*

Statically typed toy language in C++ to explore compiler theory.

- Wrote a lexer, recursive-descent parser, and code generator emitting x86 NASM assembly.
- Supported variables, arithmetic, and control flow (**if/else**); produced working executables.

## Education

### B.Sc. in Computer Science

*Minia University* — 2021 – 2025

GPA: 2.7/4.0.

## Achievements

- Competitive Programming: **Expert** rank on Codeforces; ECPC and IEEEExtreme participant.
- Solved 3,000+ problems on Codeforces, 300+ on AtCoder, 200+ on LeetCode.