

# MAHMOUD KHAFAGY

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## SUMMARY

Software Engineer with 3+ years building production backend systems and applied AI product features across **Python, .NET, Swift, SQL, AWS, and PyTorch**. Built and shipped an iOS **LLM Copilot** that turns natural-language and OCR schedule input into **JSON-schema-validated reminder actions** with App Attest, quota metering, and telemetry guardrails.

## TECHNICAL SKILLS

<b>Languages:</b>	Python, C#, Swift, SQL, JavaScript/TypeScript
<b>Backend/APIs:</b>	.NET Core, FastAPI, Flask, SQLAlchemy, Pydantic, REST APIs
<b>AI/LLM:</b>	PyTorch, Structured outputs, JSON Schema validation, tool/function calling, prompt routing/versioning, retries/fallbacks, ambiguity shadow policy, App Attest, signed transaction verification
<b>Data/Cloud:</b>	SQL Server, PostgreSQL, DynamoDB, Pandas, ETL, query optimization, AWS Lambda, API Gateway, CloudWatch, ECR, S3
<b>Mobile/Tools:</b>	SwiftUI, CloudKit, Vision OCR, StoreKit 2, Git, Jira, Confluence

## RELEVANT EXPERIENCE

**Naval Air Warfare Center**  
*Software Engineer*

China Lake, CA  
March 2023 - October 2025

- Built and maintained **.NET Core + Vue.js + SQL Server microservices** that tracked naval resources for budgeting and operational reporting.
- Reduced average API response time by approximately **20%** by tuning backend queries and rebalancing workload execution.
- Improved **SQL Server** query performance by **15–20%** through schema refinements, stored procedure optimization, and migration from legacy **Toad** workflows.

**Seminaut Inc.**  
*Software Engineer*

Austin, TX  
April 2022 - March 2023

- Developed scalable web features with **Python, React.js, Flask**, and **SQLAlchemy**, improving engagement and reducing page load times.
- Designed a regional assignment engine using **PostgreSQL** and a **greedy algorithm** to optimize competition structure and personalized recommendations.
- Analyzed large-scale user and platform data with **Python** and **Pandas**, building leaderboards and retention insights for product decisions.

## PERSONAL PROJECTS

**True Reminder (iOS + LLM Copilot)**

*TestFlight (beta)*

*Swift/SwiftUI, CloudKit, Vision OCR, StoreKit 2, FastAPI, PyTorch, AWS Lambda, API Gateway, DynamoDB, CloudWatch*

- Built and shipped an iOS reminders/alarms app with shared CloudKit **“Spaces”** collaboration, offline-first caching, optimistic merges, and repeat/snooze/pre-alert workflows.
- Shipped an **LLM Planner Copilot** that transforms natural-language and OCR schedule input into **JSON-schema-validated reminder/alarm actions** with retries/fallbacks, time patching, and PyTorch-based category routing.
- Deployed the Copilot service as **FastAPI** on **AWS Lambda** behind **API Gateway** with correlation IDs, structured logs, App Attest, and signed-transaction verification.
- Implemented ambiguity **shadow-mode policy** (clear vs ambiguous date/target) and a **PyTorch** category-classification prototype with suggest/block telemetry, plus subscription-aware **DynamoDB quotas** and CloudWatch latency metrics (p50/p95).

## EDUCATION

**Georgia Institute of Technology**

Master of Science in Computer Science, Specialization in Artificial Intelligence

Atlanta, GA  
Expected May 2027

**California State University, Fullerton**

Bachelor of Science in Computer Science

Fullerton, CA  
December 2022