

Ali Krema

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EDUCATION

University of Pennsylvania, School of Engineering and Applied Sciences | Philadelphia, PA

GPA: 3.65

BSE in Computer Science. Magna Cum Laude 2023

Honors/Awards: [Onsi Sawiris Scholarship Recipient '19](#); UPenn '23 CIS Faculty Appreciation Award; UPenn '23 CIS TA [Hall of Famer](#)

Relevant Coursework: Data Structures and Algorithms; Operating Systems; Algorithm Analysis; Database and Information Systems; Human-Computer Interaction (UI/UX); Interactive Computer Graphics

Certificates: Udacity: [Advanced Android Development in Kotlin](#); Udemy [The MERN Fullstack Guide](#)

WORK EXPERIENCE

Software Engineer @ [Aydi](#)

Jul 2023 – Present

Technologies: TypeScript, Nest.js, Node.js, AWS, SQL, MariaDB, Redis, React, Next.js, LLMs, RAG, VectorDBs

- Designed and implemented RESTful APIs for scalable backend services and database schemas to support complex workflows.
- Developed Inventory Management System with Nest.js and MariaDB, utilized by over 50% of clients to manage farm operations.
- Built AydiAI, a full-stack text-to-SQL solution integrating Nest.js, Next.js, and AI pipelines with vector stores and RAG.
- Architected AI pipelines utilizing OpenAI, Gemini, and open-source LLMs for natural language data querying.
- Created and deployed an AI Onboarding tool using multimodal data entry (text, images, PDFs) to automate and accelerate client setup.
- Managed cloud deployments on AWS EC2, overseeing infrastructure for high-performance backend services.
- Mentored and managed a backend intern, conducting code reviews and training on software design principles and best practices.
- Designed and led the development of a conversational AI sales agent to engage leads via WhatsApp and personalize outreach.

Backend Development Course Instructor @ [AMIT Learning](#)

Jul 2024 – Sep 2024

- Taught Node.js and MongoDB to a class of 14 students, ranging from undergraduate to graduate students.
- Conducted 17 interactive sessions over three months, meeting twice weekly for approximately 3 hours each.
- Developed course materials and curriculum, including building a course website, designing lecture slides, and creating coding exercises.
- Reviewed assignments and provided detailed feedback, enhancing student learning outcomes and engagement.
- Concluded with a hands-on workshop, reinforcing critical concepts through practical application.

Class Instructor @ UPenn, [CIS1950: Android Development in Kotlin](#)

Jan 2023 – May 2023

- Instructed a project-based Android Development course at the University of Pennsylvania, focusing on Kotlin
- Conducted weekly 90 mins interactive lectures, engaging a class of 15 undergraduates with hands-on coding session
- Developed a comprehensive curriculum covering UI Design, View Binding, MVVM Architecture, APIs, RecyclerView
- Facilitated weekly office hours, providing personalized support in debugging and reinforcing key concepts

Teaching Assistant, [CIS2400: Introduction to Computer Systems](#) | Philadelphia, PA

Aug 2021 – Dec 2022

- Educated over 500 students in C programming, CPU architecture, Assembly language, and Circuit Design.
- Led 4-hour weekly review sessions and coding workshops, fostering a deeper understanding of complex topics.
- Dedicated 100+ hours to office hours, offering targeted assistance on homework and projects.
- Contributed to the creation and grading of diverse homework assignments and exams

SOFTWARE PROJECTS

AydiAI, Full-Stack Developer

Node.js, RAG, Redis, Next.js, React, AWS, SSE

- Developed a full-stack AI solution allowing users to query farm data through natural language interactions.
- Designed and implemented an LLM-based text-to-SQL pipeline using OpenAI assistants, enabling SQL generation and data retrieval.
- Utilized Redis for message queuing, managing concurrent requests with Sorted Sets and Queues for scalability.
- Deployed and managed the solution on AWS EC2, integrating it with existing backend and frontend infrastructures.
- Built real-time response capabilities using Server-Sent Events (SSE) to enhance user interactivity and reduce response times.

SKILLS & INTERESTS

Software: TypeScript, JavaScript, Nest.js, Node.js, SQL, MongoDB, Kotlin, Java, C, Python, C++, Git & GitHub, React, React-Native, MariaDB, OCaml, Vercel,

Interests: CS-ED, LLMs, AI Agents, Teaching

Languages: Arabic (Native), English (Fluent), German (Intermediate)