

Khayyal Abdullah Aba-Alkayel

AI Engineer

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PROFESSIONAL SUMMARY

AI Engineer building agentic systems, retrieval pipelines, and computer vision for domains where being wrong is expensive. Computer Science student at Qassim University with a **GPA of 4.9 / 5.0** and a graduate of the **KAUST Academy Advanced AI Program**, admitted by competitive selection into a limited Saudi cohort. Led the team that won **1st place nationally** at the AgentX AI Hackathon and placed 3rd at the Saudi Digital Academy Agentic AI Bootcamp. Builds systems that reach real users, not demos: a clinical documentation tool cutting nurses' note-writing by 6x, and a booking platform live in production with 10+ centres and 1,000+ reservations. Arabic native, English professional.

KEY ACHIEVEMENTS

- **1st place nationally, AgentX AI Hackathon, SAR 30,000.** Team lead and AI engineer for Saden, judged in the presence of the Minister of Communications and Information Technology and the Emir of the Qassim Region. Held with QABAS and T2.
- **3rd place, Agentic AI Bootcamp Hackathon** (Saudi Digital Academy and atomcamp) for Wifaq, a medication safety engine backed by a deterministic rule core and 114 guardrail tests.
- **6x faster clinical documentation.** Cut nurses' note-writing from roughly two hours a day to about twenty minutes per practitioner, measured on staff in active practice.
- **GPA 4.9 / 5.0** at Qassim University, and graduate of the KAUST Academy Advanced AI Program.
- **Two products live in production:** a booking marketplace with 10+ centres and 1,000+ reservations, and a restaurant operations SaaS.

PROJECTS

Saden, Team Lead & AI Engineer

Jun 2026

1st place nationally, AgentX AI Hackathon, SAR 30,000

Code: github.com/Khayyal-AbaAlkhey1/Saden

- **Multi-agent architecture:** built a master agent orchestrating vision, routing, scoring, and recommendation specialists over drone imagery and coastal sensor data for Red Sea mangrove monitoring.
- **Sensor fusion:** fused 7 signals per zone: 4 from computer vision (algae coverage, seedling height, spacing compliance, survival rate) and 3 from sensors (heat, salinity, wave index).
- **Design decision:** a 30% survival threshold switches the pipeline between growth analytics and survival analysis, changing both what is measured and what is recommended.
- **Zero manual entry:** operators approve flights only; no image upload or sensor input in the UI, so the record cannot drift from reality. FastAPI, OpenCV, YOLO, React, Leaflet, Docker.

Saalem, AI Engineer & Product Manager

May 2026 to present

2 hrs to 20 min daily documentation, 6x faster per practitioner

- An AI clinical documentation product for nurses, in active use. Cut note writing from roughly two hours a day to about twenty minutes per practitioner, a 6x reduction measured on practising staff.
- Commercial project. Architecture and implementation details available on request.

Wifaq, AI Engineer & Team Lead

Aug 2026

3rd place, Agentic AI Bootcamp Hackathon, Saudi Digital Academy and atomcamp

- **LangGraph state machine:** an orchestrator plus 5 specialist agents (interaction, scheduler, food context, recovery, safety) that plan a patient's medication day around drug-drug, drug-food, and meal-timing constraints.
- **Deterministic safety:** interaction verdicts come from a rule engine, not the model. The system runs with no API key and loses only the natural-language explanation, never the safety logic.
- **Constraint solving:** meal, food, and drug passes iterate to convergence before a day is declared feasible; a late dose pushes the next one out rather than rewriting history.
- **Guardrails:** 114 tests covering safety veto, schema validation, iteration limits, and fail-closed behaviour. Python, FastAPI, Pytest, React, Gradio.

Arabic Sign Language Digital Twin, AI Engineer, graduation project

In progress

- **Research goal:** reconstruct a smart glove's signal from ordinary RGB video, removing the hardware barrier to sign-language recognition.

- **Benchmarking:** evaluated 4 hand-pose backends (MediaPipe, HaMeR, WiLoR, OmniHands) behind a shared interface, targeting consumer hardware (RTX 2060 Super) rather than datacenter GPUs.
- **Reproducibility:** staged pipeline with immutable extraction outputs. Every stage writes forward and never overwrites its input, so any result traces back to the frames that produced it.
- **Embedded track:** designed a recognition glove on IMU sensors and ESP32 microcontrollers with the neural network deployed on-device for real-time translation.

Enan, Product Manager

Aug 2026 to present

Live, 10+ centres signed, 1,000+ reservations

Live: enanapp.com

- Equestrian booking platform live in production: public marketplace, per-centre operations console, platform admin, and WhatsApp notifications through a queue-backed worker.
- Fully RTL Arabic product. React 19, TypeScript, Supabase, Postgres with row-level security.

Table Zone, Product Manager

Jun 2026 to Aug 2026

Live at tablezone.net

Live: tablezone.net

- Restaurant table timing SaaS, live in production. A real time grid of table cards counting how long each party has been seated. Taken from spec through build. React Native/Expo, Express, Socket.IO.

Saudi Digital Academy and atomcamp. Team lead and AI engineer for Wifaq.

EDUCATION

BSc Computer Science, Qassim University

2022 to 2027, expected

GPA: 4.9 / 5.0

Focus: system architecture, artificial intelligence, advanced mathematics

Advanced Artificial Intelligence Program, KAUST Academy

2025 to 2026

Deep learning architectures, advanced machine learning, and AI system engineering. Competitive admission, one of a limited cohort of Saudi students.

TECHNICAL SKILLS

Agentic AI & LLMs

LangGraph, multi-agent orchestration, RAG, LLM integration, prompt engineering, guardrails & evaluation, recommendation systems

Machine learning

Deep learning, neural networks, computer vision (classification, detection, multispectral), 3D pose estimation, speech recognition, predictive modelling

Engineering

Python, C++, TypeScript, FastAPI, React, Postgres/Supabase, Docker, Git, Pytest, Linux

Libraries & tools

PyTorch, TensorFlow, Hugging Face, OpenAI API, OpenCV, YOLO, MediaPipe, NumPy, Pandas

LANGUAGES

Arabic: Native

English: Professional working proficiency

CERTIFICATIONS

Advanced Artificial Intelligence Program, KAUST Academy, 2026

Linear Algebra for Machine Learning and Data Science, DeepLearning.AI, 2025

Calculus for Machine Learning and Data Science, DeepLearning.AI, 2025

Probability & Statistics for Machine Learning & Data Science, DeepLearning.AI, 2025

Python Basics, University of Michigan, 2024

Python Functions, Files, and Dictionaries, University of Michigan, 2024