

Khayyal Abdullah Aba-Alkayel

AI Engineer

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SUMMARY

AI Engineer building agentic systems, retrieval pipelines, and computer vision for domains where being wrong is expensive. Computer Science student at Qassim University, GPA 4.9 / 5.0, and a graduate of the KAUST Academy Advanced AI Program. Led the team that won 1st place nationally at the AgentX AI Hackathon (SAR 30,000) and placed 3rd at the Saudi Digital Academy Agentic AI Bootcamp. Ships systems that reach real users, including a clinical documentation tool that cut nurses' note-writing by 6x.

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.

AI PROJECTS

- Saden, Team Lead and AI Engineer**Jun 2026
 - 1st place nationally, AgentX AI Hackathon, SAR 30,000**
 - Multi-agent architecture:** master agent orchestrating vision, routing, scoring, and recommendation specialists over drone imagery and coastal sensor data for Red Sea mangrove monitoring.
 - Sensor fusion:** 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. Operators approve flights only, with no manual entry, so the record cannot drift from reality.
 - Stack:** FastAPI, OpenCV, YOLO, React, Leaflet, Docker. Code: github.com/Khayyal-AbaAlkheyil/Saden
- Wifaq, Team Lead and AI Engineer**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) planning 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.
 - Guardrails:** 114 tests covering safety veto, schema validation, iteration limits, and fail-closed behaviour. Python, FastAPI, LangGraph, Pytest, React.
- Saalem, AI Engineer**May 2026 to present
 - 2 hours to 20 minutes daily documentation, 6x faster per practitioner**
 - AI clinical documentation product in active use by nurses. Speech-to-text and LLM generation turn a spoken handover into a structured note checked against institutional policy.
 - Draft and confirm by design: the practitioner edits and signs every note, so the system never files clinical text autonomously. Commercial project, architecture available on request.
- Arabic Sign Language Digital Twin, AI Engineer, graduation project**In progress
 - Reconstructing a smart glove's signal from ordinary RGB video, removing the hardware barrier to sign-language recognition.
 - Benchmarked 4 hand-pose backends (MediaPipe, HaMeR, WiLoR, OmniHands) behind a shared interface, targeting consumer hardware (RTX 2060 Super) rather than datacenter GPUs. Embedded track deploys the network on-device on IMU sensors and an ESP32.

TECHNICAL SKILLS

- Agentic AI and LLMs:** LangGraph, multi-agent orchestration, RAG, LLM integration, prompt engineering, guardrails and 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 and Tools:** PyTorch, TensorFlow, Hugging Face, OpenAI API, OpenCV, YOLO, MediaPipe, NumPy, Pandas

CERTIFICATIONS

Advanced Artificial Intelligence Program, KAUST Academy, 2026. DeepLearning.AI, 2025: Linear Algebra, Calculus, and Probability and Statistics for Machine Learning and Data Science.

LANGUAGES

Arabic: native. English: professional working proficiency.