Ijtihed Kilani

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EDUCATION

Aalto University — Aug 2026 – Jun 2028
MSc in Pure Mathematics, Minor in Algorithms & Theoretical Computer Science — *Incoming*

Aalto University — Aug 2024 – June 2026
BSc in (Computational) Mechanical Engineering, Minor in Computer Science — *Graduating in 2 years instead of 3*

EXPERIENCE

Founding Software Engineer — Nov 2025 – Present
Kova Labs, Full-time — *Helsinki, Finland*
- **#2 Hire leading simulations & digital-twin** at a Lifeline VC-backed startup building drone autonomy.
- Managing autonomy and perception pipelines in **C++/Rust**, integrating into a Unity/TS sim with ROS2 interfaces.
- Deployed to a physical drone and cut localization error 0.35 m→0.12 m and failures 2.0/min→0.8/min with math optimization.

Software Engineer — Mar 2025 – Nov 2025
Sensofusion, Full-time — *Helsinki, Finland*
- Joined at age 17 the fastest growing anti-drone startup in Europe as **lead simulations engineer**.
- Shipped an end-to-end drone simulator (TS + Three.js, Python/C++ backend) with hand-optimized 3D assets.
- Reduced cold start **from 15 s→2.5 s** and improved **FPS 30→60** via lazy loading/reducing per-frame allocations.

Research Assistant — Nov 2025 – Present
Aalto University, Computational Behavior Lab — *Espoo, Finland*
- Reproduced Physical AI **NeurIPS 2024** CooHOI baselines with **GPU-parallel simulation** using PyTorch/CUDA.
- Building a Unity OpenXR ↔ Isaac Gym bridge to stream real-time VR human motion for human-in-the-loop policy evaluation.

Teaching Assistant — Sep 2025 – Jan 2026
Aalto University, Department of Computer Science — *Espoo, Finland*

Research Intern — Jun 2023 – Aug 2023
Institute of Mathematics and Informatics — *Varna, Bulgaria*
- Built a **graph search engine** for combinatorial tasks using **A*** in **Python/C++** with state modeling and pruning.
- Built result caching, lowering exploration by **70%** and improving runtime by **3×** on very large instances.

PROJECTS

Self-Hosted Home Server (Lab) | *Debian 13 (KVM), Ollama, CUDA, WebUI, Tailscale, systemd*
- Deployed a private, GPU-accelerated local LLM stack with a self-hosted UI and VPN-secured remote access (Tailscale + SSH).
- Served quantized long-context models with tool/function calling eg. (Llama 3.1 & Qwen2.5-Coder) managed as a systemd service.

Real-Time Physics (Dynamics) Engine | *C++, ROS2, Unity, gRPC/WebSockets*
- Built a custom **C++ terrain / vehicle dynamics simulator** (rigid-body contact, friction, slopes) w/ deterministic scenarios.

Physical Race-Car Suspension Bracket | *Python, Ansys, Finite Element Methods, Post-Processing*
- Built an automated simulation + topology-optimization workflow for a **physical race-car** suspension bracket.
- Turned solver outputs into a **manufacturable 3D model**, cutting weight by **25%** & meeting stiffness targets w/ on-car validation.

Agentic AI Clinical Scribe | *Next.js, Python, Wispr Flow, OpenAI API, SQLite, TypeScript/JavaScript*
- Built under 24 hours a real-time clinical scribe using Next.js + Tailwind and a FastAPI/WebSockets backend at **HackMIT '25**.

AWARDS AND ACHIEVEMENTS

National Olympiad for Programming (KSA), #1 / 280,000 participants — 2024
1st round; Featured on local + national news. Speaker at events.

World Robotics Olympiad ('22 & '23), 2x Silver + 1x Bronze (#2, #4 & #5 / 2,500+) — 2023
Built fully custom PCB board used by AI-powered autonomous physical health assistant (mobile robot).

Lead, Null Fellows (Fellowship) — Present
Led cohort operations and founder support for a Helsinki-based builder fellowship placing talent into top European startups.

Y Combinator (YC) AI Startup School, San Francisco — 2025
Selected participant; Invited to SF with travel fully sponsored.

TECHNICAL SKILLS

Languages: Python, TypeScript, C++, C#, Rust

Tools/Tech: React, Node.js, Flask, SQL, WebSockets, PostgreSQL, Docker, AWS, Google Cloud