

# Ijtihed Kilani

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## EDUCATION

### Aalto University

*M.S in Mathematics*

Jun 2027

*B.S in Computational Engineering*

Jun 2026

## EXPERIENCE

### Founding Software Engineer

Nov 2025 – Present

*Helsinki, Finland*

*Kova Labs, Full-time*

- #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

*Helsinki, Finland*

*Sensofusion, Full-time*

- 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

*Esopo, Finland*

*Aalto University, Computational Behavior Lab*

- 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 eval as thesis.

### Teaching Assistant

Sep 2025 – Jan 2026

*Esopo, Finland*

*Aalto University, Department of Computer Science*

### Research Intern

Jun 2023 – Aug 2023

*Varna, Bulgaria*

*Institute of Mathematics and Informatics*

- 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