

# 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 Engineering, Minor in Computer Science*

*Graduating in 2 years instead of 3*

## EXPERIENCE

### Founding Software Engineer (Systems & Autonomy)

Nov 2025 – Present

*Kova Labs*

*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 (Systems)

Mar 2025 – Nov 2025

*Sensofusion*

*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 (Physical AI)

Nov 2025 – Present

*Aalto University, Computational Behavior Lab*

*Espoo, Finland*

- Reproduced **NeurIPS 2024** CooHOI baselines in NVIDIA Gym 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 (CS-C3150, Software Engineering)

Sep 2025 – Dec 2025

*Aalto University*

*Espoo, Finland*

### Research Intern (Algorithms)

Jun 2023 – Aug 2023

*Bulgarian Institute of Mathematics and Informatics*

*Varna, Bulgaria*

- Accepted at 15 to a **research program (5% acceptance)**; mentored by the international math olympiad team's coach.
- Implemented DP and graph-based search in **Python/C++** (state modeling + pruning) for **math-olympiad problems**.

## PROJECTS

### 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.

### 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.

### Skribe (HackMIT '25) | Next.js, Python, Wispr Flow, OpenAI API, SQLite, TS/JS

- Accepted to **HackMIT '25 (6% acceptance)**, fully compensated for travel to Boston.
- Built a real-time clinical scribe using Next.js + Tailwind and a FastAPI/WebSockets backend.

## 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 (WRO '22 & '23), 2x Silver + 1x Bronze (#2, #4 & #5 / 2,500+)

*Built fully custom PCB board used by AI-powered autonomous physical health assistant (mobile robot).*

### Y Combinator AI Startup School, San Francisco

2025

*Selected participant (10% Acceptance); travel flight paid/covered by organizers; talked 1 on 1 with 2 YC partners.*

## PUBLICATIONS

### Analysis of Complete Blood Count Between High-Altitude and Sea-Level Residents, Cureus Journal

2023

## TECHNICAL SKILLS

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

**Tools/Tech:** React, Node.js, Flask, SQL, WebSockets, PostgreSQL, Docker, GitHub Actions, Linux, Git, AWS, Google Cloud

**Coursework:** Data Structures and Algorithms, Parallel Computing, Discrete Math, Linear Algebra, Databases