

Ijtihed Kilani

portfolio: ijtihed.com

+358 41 740 8918 | ijtihed.kilani@aalto.fi | linkedin.com/in/ijtihed | github.com/Ijtihed

EDUCATION

Aalto University

MSc in Pure Mathematics, Minor in Algorithms & Theoretical Computer Science

Aug 2026 – Jun 2028

Aalto University

BSc in Computational Engineering, Minor in Computer Science

Aug 2024 – June 2026

Graduating in 2 years instead of 3

EXPERIENCE

Founding Software Engineer (Autonomy)

Kova Labs

Nov 2025 – Present

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.

Research Assistant

Aalto University, Computational Behavior Lab

Nov 2025 – Present

Espoo, Finland

- Reproduced **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.

Software Engineer

Sensofusion

Mar 2025 – Nov 2025

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.

Teaching Assistant

Aalto University, Department of Computer Science

Sep 2025 – Dec 2025

Espoo, Finland

Research Intern

Bulgarian Institute of Mathematics and Informatics

Jun 2023 – Aug 2023

Varna, Bulgaria

- Implemented graph-based search in **Python/C++** (state modeling + pruning) for **math-olympiad problems**.

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.

AI Agent 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).

TECHNICAL SKILLS

Languages: Python, TypeScript, C++, C#, 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, Linear Algebra, Databases