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*

- Reproducing **NeurIPS 2024 CooHOI** baselines in NVIDIA Isaac Gym (GPU accelerated simulation).
- Developing a Unity OpenXR ↔ Isaac Gym bridge to stream a VR human agent for human-in-the-loop 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 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.

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.

"The Yappin' Spirit" | *C#, Python, Unity*

- Built a real-time vision pipeline (OpenCV + DeepFace) via Flask, streaming computer vision model output into Unity at 60 FPS.

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