Muhammed Berkay Yarder

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Education

University of Twente — Enschede, Netherlands
BSc Technical Computer Science — *Sep. 2024 – Expected 2027*

- 9.9/10 on the Module 2 Software Systems project (multiplayer game in Java); 9.1/10 on Module 1, top score
- Relevant courses: Intelligent Embedded Systems; minor: Circuits & Electronics, Sensors, Modelling & Control

FMV Işık Science High School — Istanbul, Türkiye
Diploma 94/100; AP Scholar with Honor (Physics 5, Microeconomics 5, Calculus AB 4) — *2020 – 2024*

Projects

Edge AI Ecological Monitoring System | *PyTorch, YOLO11, ONNX, Hailo, Raspberry Pi 5, SQLite* 2026

- Built an offline farm camera in a team of 4 that flags threats to livestock using YOLO11 on a Hailo-10H NPU
- Pruned the network by 15% after 30% collapsed fox recall, compiled it to INT8 with the Hailo Dataflow Compiler, and moved non-max suppression on-chip so the CPU only gets filtered boxes
- Added a rule-based threat layer (per-class confidence thresholds, temporal check) so the policy changes without retraining, plus a live SQLite-backed dashboard; the pruned FP32 model reached 0.76 mAP50-95

FPGA Sobel Edge-Detection Accelerator | *Clash (Haskell), Verilog, AXI4-Stream* 2025 – 2026

- Designed a Sobel edge-detection accelerator in Clash with AXI4-Stream I/O and a shift-register window buffer
- Fixed the `s_axis_tready` backpressure handshake and the 1D convolution transpose; verified in simulation
- Also built a stack-based processor in Clash and a Verilog traffic-light FSM with Icarus Verilog testbenches

Real-Time Scheduling for Aircraft Cabin Monitoring | *Rate Monotonic, real-time systems* 2026

- Modelled a five-task cabin pressure and oxygen monitor, assigned RM priorities and verified schedulability
- Built the oxygen-mask deployment logic and analysed a safety-critical task stuck at the lowest RM priority

Tutoring Platform for Inter-Actief | *Best Project Award, Module 4 (Data & Information)* 2025

- Built in a 10-week Agile Scrum project for UT's Computer Science study association: tutors publish profiles and lessons, students find tutors and book sessions; the client plans to use it in practice

Basketball Shot-Coaching App | *Vue.js, MediaPipe* 2025 – 2026

- Web app (team of 5) giving beginners real-time shooting-form feedback via pose estimation and voice cues

Experience

Vice President & HR Manager — 2026 – Present
ESN Twente (Erasmus Student Network), 37th Board — *Enschede, Netherlands*

- Help the President lead the volunteer-run section that supports UT's international students
- Own recruitment, onboarding and retention of volunteers and committee members
- Maintain the section's WordPress website (esntwente.nl) and its admin panel

Software Engineering Trainee — 2023
Peak Games — *Istanbul, Türkiye*

- Shadowed software engineers at a large-scale mobile game studio to learn how production games are developed

Robotics Software Engineer — 2021 – 2023
FRC Team FMWill, FIRST Robotics Competition — *Istanbul, Türkiye*

- Designed and implemented a new drive system in Java (WPILib, NavX) with tuned PID control loops
- Debugged autonomous code between matches; team won 5 awards incl. Engineering Design, Regional Finalist
- Ran workshops for new members on software development principles and coding standards

Skills & Activities

Languages: C, C++, Python, Java, Haskell, Clash, Verilog, SQL, JavaScript
Embedded: FPGA/RTL design, AXI4-Stream, real-time scheduling, PID control, Raspberry Pi, Arduino, RP2040
AI & Tools: PyTorch, ONNX, YOLO, Hailo, MediaPipe, Git, GitLab CI, Docker, Vue.js, Unity, Unreal Engine
Spoken: Turkish (native), English (C1), German (A2)
Activities: Organised a charity bazaar for stray animals; licensed basketball player for 7 years, team captain