

ABDULLAH CELIK

Edge AI | Computer Vision | Autonomous Systems
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SUMMARY

Computer Engineering student at Politecnico di Torino (graduating March 2027) specializing in edge AI, computer vision and autonomous systems. IEEE-published co-author on edge AI reliability, developed in collaboration with STMicroelectronics. Former manager of a 10-member autonomous driving software team that rebuilt a non-functional vehicle software stack into a reliable ROS2-based system with real-time perception on NVIDIA Jetson.

TECHNICAL SKILLS

Programming: Python, C++, C, CUDA, MATLAB

Machine Learning: PyTorch, TensorFlow, Keras, ONNX, TensorRT, OpenCV, YOLO, NumPy

AI Methods: Computer Vision, Object Detection, Deep Learning, Edge AI, Model Reliability, Fault Injection, Sensor Fusion, Path Planning, Reinforcement Learning, Real-Time Inference

Embedded and Robotics: NVIDIA Jetson, JetPack SDK, ROS2, Automotive Microcontrollers (ST Stellar E), Data Acquisition Systems

Tools: Linux, Git, GitHub, Docker, LaTeX

Languages: Turkish (Native), English (C1), Italian (B1)

EDUCATION

Bachelor of Science in Computer Engineering | Politecnico di Torino, Turin, Italy | Sep 2022 - Mar 2027 (expected)

EXPERIENCE

Edge AI Reliability Research Intern | Politecnico di Torino, in collaboration with STMicroelectronics, Turin, Italy | Jan 2026 - Apr 2026

- Reduced Mean Accuracy Drop from 3.30% to 0.19% in safety-critical neural networks running on the STMicroelectronics Stellar E automotive microcontroller by developing fault mitigation workflows.
- Built Python toolchains integrating automated reliability assessment, fault injection and software-level hardening into the ST Edge AI Core suite.
- Implemented Software Triple Modular Redundancy (sTMR) and an Adaptive Clipper mechanism; the Adaptive Clipper suppressed fault-induced activation spikes with zero flash memory overhead and a 1.004x execution time impact.
- Engineered a workaround for aggressive C compiler deduplication by applying negligible perturbations to network weights, forcing the distinct memory allocations required for runtime redundancy.
- Automated model validation by extracting raw NumPy validation data and stabilized legacy Python environments with a Linux sidecar installation.

Autonomous Driving Software Division Manager | H2 Polito (Politecnico di Torino student team), Turin, Italy | Oct 2024 - Nov 2025

- Took over a non-functional autonomous driving software stack and led a 10-member cross-functional team in rebuilding it into a reliable, fully functional system for the Juno autonomous vehicle.
- Led the migration of the software architecture to ROS2 and deployed hardware-accelerated perception on NVIDIA Jetson using CUDA, TensorRT and the JetPack SDK for real-time inference.
- Led the development and optimization of computer vision models for object detection and environment perception using PyTorch, YOLO and OpenCV.
- Integrated new sensors and implemented sensor fusion approaches to improve vehicle localization and perception accuracy.
- Oversaw the complete redesign of path-planning algorithms, including the integration of reinforcement learning methods, to improve trajectory precision and navigation efficiency.

Autonomous Driving Division Member | H2 Polito (Politecnico di Torino student team), Turin, Italy | Oct 2023 - Oct 2024

- Developed, trained and integrated computer vision models for vehicle perception with the perception and path-planning teams for the Shell Eco-marathon autonomous driving competition.

Test Bench Team Member | Politecnico di Torino Rocket Team (student team), Turin, Italy | Nov 2022 - Oct 2023

- Designed and integrated data acquisition (DAQ) systems for a liquid rocket engine test bench, interfacing pressure transducers, thermocouples, load cells and flow meters while meeting functional safety requirements.
- Analyzed high-frequency telemetry and sensor data in MATLAB and Excel to validate engine test results.

International Sales Specialist (Intern) | Western Health Turkey, Izmir, Turkey | Jun 2022 - Sep 2022

- Met international sales targets by explaining complex medical procedures clearly to a global customer base.

PUBLICATIONS

An Edge AI Industrial Environment Supporting Reliability Assessment and Enhancement. Co-author. IEEE International Conference on Omni-layer Intelligent Systems (COINS) 2026, IEEE Xplore.

AWARDS AND COMPETITIONS

- Shell Eco-marathon, Autonomous Driving Category** - 3rd Place (2023); Participant (2024)
- Best Hackathon by Reale Mutua** - 2nd Place
- FISU Torino Brainstorm Challenge** - Team Finalist | **NASA Space Apps Challenge** - Participant (2023)
- CERN Beamline for Schools** - Team Lead (2021); authored an experiment proposal for DESY II
- U.S. Department of State YES Program** - Full Scholarship (2019 - 2020)

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