Oguz Altan

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AI/Robotics Engineer specializing in autonomous systems, machine learning, deep learning, reinforcement learning, and data science, with a strong track record of developing innovative solutions across diverse projects and deep expertise in cutting-edge technologies.

Experience

Dec 2024 – present **Paderborn, Germany**	***Robotics Researcher / Wissenschaftlicher Mitarbeiter*** **University of Applied Sciences (FHDW) Paderborn** Tech: Python, C++, ROS2, Nav2, SLAM, Gazebo, RViz, Git, Linux Title: *SilvaBot - Fully Autonomous Robot for Scalable, Climate-Change-Adapted Forest Conversion* **Autonomously reforesting** areas affected by climate change and wildfires through **ground and aerial robots** using **swarm intelligence**. Focus on the research and development of robotics software architectures, focusing on **swarm behavior**, **multi-sensor fusion**, **task and motion planning**, **navigation**, **mapping**, **perception**, and **obstacle avoidance** algorithms for autonomous **ground** and **aerial** robots operating in **dynamic** environments.
Feb 2023 – Sep 2023 **Wacthberg, Germany**	***AI / Machine Learning Engineer*** *- Master's Thesis Student* **Fraunhofer FKIE** Tech: Python, NumPy, Gym, Ray, RLlib, TensorFlow, TensorBoard, Keras, CNN, PIL, Git, Docker, Linux Title: *Tracking and Evasion using Co-Training with Context Knowledge* – Grade*:* 1.3 Optimized **unmanned aerial vehicle flight paths** for target tracking in cities using **deep reinforcement learning**. Integrated realistic urban environments and **procedural map generation** for enhanced performance.
Mar 2022 – Dec 2022 **Munich, Germany**	***AI / Machine Learning Engineer*** *– Intern and Working Student* **Siemens** Tech: Python, NumPy, Pandas, TensorFlow, TensorBoard, CNN, Excel, Git, NVIDIA Jetson, Linux, Docker Part of a **research and development** team of 40. Focus on optimizing steel and aluminum **3D printing** for car and plane chassis/bodies. **Data processing and cleaning** of raw print data from *AI-integrated Wire Arc Additive Manufacturing processes*. Developing and testing **machine learning models** for **detecting anomalies** in the 3D print process. Identified **autoencoders** as the most effective for **anomaly detection**, based on **F1** and **PR AUC** scores.
June 2019 – Sep 2019 **Erlangen, Germany**	***Electrical Engineer*** *- Intern* **Fraunhofer IIS** Tech: EAGLE, Proteus, PCB Design, Microprocessors, Embedded Systems, Prototyping, Linux Redesigned and programmed **wireless embedded systems** used by members and undergraduate students of the IoT and Embedded Electronics teams at FAU Erlangen-Nürnberg and Fraunhofer IIS.
June 2018 – July 2018 **Ankara, Turkey**	***Electrical Engineer*** *– Intern* **TUBITAK Space Technologies Research Institute** Tech: EAGLE, Proteus, Digital Signal Processing, Op-Amp, Noise Reduction, Analog to Digital Signal Conversion As part of the satellite payload electronic design team, designed and implemented a systematic method for **transmitting analog signals** through a **noisy** medium and worked on **analog-to-digital signal conversion**.

Education

Oct 2020 – Sept 2023 **Aachen, Germany**	***RWTH Aachen University*** **M.Sc. Electrical Engineering, Information Technology, and Computer Engineering** *GPA:* 2.2 *DAAD Scholarship for Completing Studies (*2023)
Oct 2016 – June 2020 **Ankara, Turkey**	***Bilkent University*** **B.Sc. Electrical and Electronics Engineering** *GPA:* 1.9 *Scholarship of the Turkish Prime Ministry (*2016 - 2020)

Skills

General	Teamwork, Technical Writing, Software & Databases, Robotics*,* AI and Machine Learning, Data Science
Programming	Python, C++, MATLAB, SQL, Java, LaTeX, VHDL, Assembly
Robotics & Simulation	ROS 2, Gazebo, Simulink, RViz, Nav2, SLAM Toolbox, BehaviorTree.CPP
AI & Machine Learning	PyTorch, TensorFlow, Scikit-Learn, Ray, OpenAI Gym, NumPy, Pandas, SciPy
Tools & Software	Linux, Git, Docker, VS Code, EAGLE, MS Office
Languages	English (Fluent), French (Fluent), German (Beginner), Turkish (Native)

Projects

2020 - 2021 **Summer Semester**	***Mobile Robotics in Disaster Scenarios*** Institute of Man-Machine Interaction at RWTH Aachen University Authored a [review article](#) for the seminar course *Current Concepts and Trends in Robotics and Simulation Science.*
2019 - 2020 **Winter - Summer Semester**	***Accompanying Humans and Achieving Designated Tasks with Autonomous Mobile Robots*** Industrial Design Bachelor's Project Developed an [autonomous land robot](#) using **YOLO** and **LIDAR** for human tracking and obstacle evasion, and conducted simulations with **ROS** and **Gazebo**.
2017 - 2018 **Summer Semester**	***Hand Gesture Controlled Remote Car*** Microprocessors Course Project Engineered a [4WD remote car](#) controlled via hand gestures, utilizing **Bluetooth** communication with **NXP FRDM-KL25Z** and **Arduino Nano microcontrollers**.
2017 - 2018 **Winter Semester**	***Rotating Object Detector*** Digital Design Course Project Implemented a **BASYS 3 FPGA**-based [mechanism](#)detecting objects within a range, coded with **VHDL.**