

Cagil ORAL

Automotive Software Developer

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Passionate about software design and development, with a focus on embedded systems. Possesses practical experience in the automotive industry, an MSc in Automotive Mechatronics, and a thorough understanding of development processes. Enthusiastic about innovative technologies and emerging trends in driver assistance systems. Offers an analytical mindset, a structured approach to work, and a strong team spirit. Outside of work, enjoys sports and nature.

EXPÉRIENCE PROFESSIONELLE

Current February 2024	Software Development ADAS Master Thesis, KTM AG, E/E Department <ul style="list-style-type: none">Master Thesis : Software development for controlling glare-free high beam in matrix LED headlight.Developing algorithms for object detection and tracking with computer vision, enabling data communication via CAN Protocol in CModel-based software development for adaptive lighting, leveraging individual pixel control logic.Implementation of state-machine algorithm and integration with TTTech TTC 510/580 ECU embedded systems. <div>Model-Based Software Development ADAS Simulink StateFlow Code Generation C C++ Embedded SW OPP</div> <div>Machine Learning Computer Vision OpenCV Automotive Ethernet Control Unit CAN</div>
February 2024 March 2023	Werkstudent, KTM AG, E/E Department <ul style="list-style-type: none">Developed a pixel-light function with real-time mathematical calculations to compensate 68% pitch-related loss, from concept through MiL, SiL to C code generation and street test validation.Implemented and integrated of an communication protocols via CAN bus and Ethernet/UDP between the control unit and light module in MATLAB.Embedded prototyping on a Linux-based Raspberry Pi, utilizing Python scripting for PoC development. <div>MATLAB/Simulink Algorithm Development MBD MiL SiL HiL Embedded Coder Microcontrollers</div> <div>Rapid Prototyping Vehicle Test AUTOSAR Vehicle Network Linux Python Git CI/CD Azure Cloud</div>
September 2022 July 2021	Simulation Engineer, TURKISH AEROSPACE INDUSTRIES, INC. (TAI), <ul style="list-style-type: none">Designed, developed and integrated low-to-medium fidelity models such as flight dynamics, propulsion, and aerodynamic models.Calculated aircraft performance using in-house methods that are written in C/C++, VBA and Python.Automated simulation processes through Linux-based scripting for HPC execution. <div>MATLAB Aerospace Blockset & Toolbox C/C++ VBA Python Macros HyperWorks CATIA</div>
July 2021 February 2021	Werkstudent, HYUNDAI MOTOR COMPANY TURKEY PLANT, <ul style="list-style-type: none">Conducted OBD-based vehicle diagnostics and ECU testing, analyzing real-time data from automated simulations. Documented and communicated reports on identified irregularities for further action <div>Automotive Electronic systems On-Board-Diagnose (OBD) Diagnostic Software CAN Bus Automated Simulation</div> <div>Troubleshooting Data Analysis Wireshark CANoe or CANalyzer</div>

STUDIUM

2024 2022	M.Sc Automotive Mechatronik und Management, FACHHOCHSCHULE OBERÖSTERREICH, <ul style="list-style-type: none">Grade : 1.63Member of IEEE Wels <div>Model-Based Engineering Sensors and Actuators Mechatronics Automotive IT E-Mobility Control Theory</div> <div>System Modeling Drive Train Architecture</div>
2021 2017	B.Sc Maschinenbau und Fahrzeugtechnik, ISTANBUL TECHNICAL UNIVERSITY, <ul style="list-style-type: none">Grade : 1.71Dean's List : 20/21 Fall, 20/21 Spring, 19/20 SpringTop 1% in National University Entrance Examination <div>Numerical Methods System Dynamics and Control Vibration Theory Dynamics Machine Design C MATLAB</div> <div>Simulink Python CAD CAE Probability</div>

SKILLS

MATLAB/ Simulink	Toolboxes : Embedded/Simulink Coder, Vehicle Network, Computer Vision, Image Processing, Vehicle Dynamics, AUTOSAR Blockset, Design Optimization, System Identification, MPC
Programming	Python : NumPy, PIL, Matplotlib, Can, Pandas, C, C++ : OpenCV, ROS, OOP
Automotive Standards	AUTOSAR, ASPICE ISO 26262, ISO 21434 (Cybersecurity), Functional Safety (FuSi), MISRA
Diagnostics and Analysis	Vector CANalyzer, Vector CANoe, Vector CANape, UDS
Design and Simulation	CATIA (CAD), HyperWorks (CAE), FreeDyn (Multibody Dynamics)
Operating Systems	Windows, Linux, RTOS, ROS

LANGUAGES

English	● ● ● ● ●
Deutsch	● ● ● ○ ○
Turkish	● ● ● ● ●

EXTRACURRICULAR ACTIVITIES

- American Football (TR National Team, 2019)
- Basketball (High School Team)
- Hiking and Mountain Biking (Hobby)
- USA W&T Program, South Carolina, 6 months

PROJETS

LANE FOLLOWER ROBOT USING ROS

DAS LAB IV LECTURE - 3. SEMESTER

 github.com/oralc/ROS-LaneFollowerBot

ROS-LaneFollowerBot was developed during the Driving Assistance Systems Lab IV course as a vision-based DAS project to enable lane-following and obstacle detection on Turtlebot platforms.

ROS Python ADAS SLAM Linux

BEV DRIVE TRAIN CONTROL SYSTEM

DTCS LAB II LECTURE - 2. SEMESTER

 github.com/oralc/BEV-DriveTrain-Control-System

Developed a Simulink model for a simplified BEV drivetrain, utilizing a PID controller to regulate motor torque and accurately drive the WLTP cycle

Simulink Matlab Modelling SLAM BEV Drive Train Control

RÉFÉRENCES

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