

Teo Cagil ORAL

Software Developer Automotive

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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.

PROFESSIONAL EXPERIENCE

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.Algorithm development for object detection and tracking with computer vision, enabling data communication via CAN Protocol in C++.Model-based development for adaptive lighting, leveraging individual pixel control logic in Simulink.Software development for microcontroller in C, implementing state-machine algorithms and integrating with TTTech TTC 510/580 ECU embedded system. <div>Model-Based Software Development ADAS StateFlow Code Generation C Embedded Software ARM Controller</div> <div>Machine Learning (ML) OpenCV C++ Automotive Ethernet UDP CAN</div>
February 2024 March 2023	Working Student, KTM AG, E/E Department <ul style="list-style-type: none">Developed a pixel-light software with real-time mathematical calculations to compensate 68% pitch-related loss, from concept through MiL, SiL, HiL 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 Embedded Coder Microcontrollers Debugging ECU Rapid Prototyping</div> <div>Automotive Networks C Unit Test UML OOP 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 propulsion, and landing models in MATLABCalculated 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	Working Student, 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 <div>On-Board-Diagnose Diagnostic Software CANoe CANalyzer Wireshark Bus UDS Troubleshooting Data Analysis</div>

EDUCATION

2024 2022	M.Sc Automotive Mechatronics and Management, FACHHOCHSCHULE OBERÖSTERREICH, <ul style="list-style-type: none">Grade : 1.63Member of IEEE Wels <div>Model-Based Design Electronics Sensors & Actuators Controllers & Observers Embedded Systems ECU Programming</div> <div>Real-time Operating Systems & Scheduling Automotive IT Signal Processing</div>
2021 2017	B.Sc Mechanical Engineering , 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 Probability & Statistics Intro. to Programming System Dynamics & Control Vehicle Powertrain</div>

COMPETENCES

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, Pandas, C, C++ : CAN, pthreads, OpenCV, LibTorch, TensorFlow
Automotive Standards	AUTOSAR, ASPICE, ISO 26262, Functional Safety (FuSi), ISO 21434 (Cybersecurity), 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	● ● ● ● ●
German	● ● ● ○ ○
Turkish	● ● ● ● ●

+ EXTRACURRICULAR ACTIVITIES

- > American Football (TR National Team, 18/19)
- > Basketball (High School Team)
- > USA W&T Program, South Carolina, 6 months
- > Hobbyist in ARM-based (STM32) Embedded

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.

Robot Operating System Linux Python ADAS Simultaneous Localization and Mapping (SLAM)

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 Battery Electric Vehicle Modelling PID Control Theory

REFERENCES

Christian Schickhuber

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