

# GURAY OZGUR



## ABOUT

**Research scientist** with a **results-driven** mindset, specializing in **Machine Learning**. Enthusiastic about translating technical skills into **real-world impact** through innovative problem-solving. Eager to learn and contribute **collaboratively**, committed to making a **meaningful difference** with **AI-powered systems**.

## EDUCATION

<b>Machine Learning, MSc</b> University of Tübingen GPA: 1.7/1.00	Sep 2021 - Nov 2023 <i>Tübingen, DE</i>
<b>Electrical and Electronics Engineering, BSc</b> Middle East Technical University (ODTÜ) CGPA: 3.43/4.00 (German Grade: 1.85)   ABET-accredited	Sep 2015 - Jul 2021 <i>Ankara, TR</i>
<b>Mathematics, BSc</b> Middle East Technical University (ODTÜ) CGPA: 3.53/4.00 (German Grade: 1.71)	Sep 2016 - Jul 2021 <i>Ankara, TR</i>
<b>Electrical Engineering, BSc</b> Korea Advanced Institute of Science and Technology (KAIST) Exchange Semester	Aug 2018 - Jan 2019 <i>Daejeon, KR</i>
<b>Eskişehir Anatolian High School</b> Focus on STEM	Sep 2011 - Jun 2015 <i>Eskişehir, TR</i>

## EMPLOYMENT

<b>Research Scientist</b> Fraunhofer IGD	Jul 2024 – Present <i>Darmstadt, DE</i>
<b>Master's Thesis</b> Siemens AG  <i>Neural Architecture Search for Semi-Supervised Anomaly Detection on a Microcontroller.</i> Developed a Hardware-Aware Neural Architecture Search (HW-NAS) pipeline for MCU anomaly detection. Achieved a flexible, memory-efficient pipeline using weight-sharing, model-based predictors, deployed to STM32L4+. Explored and optimized real-time accuracy-latency trade-offs.	Apr 2023 – Oct 2023 <i>Erlangen, DE</i>
<b>Working Student</b> Neura Robotics GmbH  Designed and developed electronics projects, collaborated with cross-functional teams to create cutting-edge robot arms. (MAiRA, MiPA)	Jun 2022 – Mar 2023 <i>Metzingen, DE</i>
<b>Machine Learning Intern</b> Kuartis Technology and Consulting  Contributed to developing algorithms for gas pipeline security by optimizing acoustic anomaly detection. Used generative models (VAEs, GANs), performed EDA with t-SNE, and HDBSCAN clustering. Extracted features (mel-scaled spectrograms, MFCCs) for effective data preprocessing.	Feb 2021 - Apr 2021 <i>Ankara, TR</i>
<b>Embedded Systems Intern</b> Darkblue Telecommunication Systems  Gained hands-on experience in embedded systems and firmware development for telecommunication applications.	Jun 2018 – Aug 2018 <i>Ankara, TR</i>

## SKILLS

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**Data Management** SQL, Pandas

**Visualization and Image Processing** Matplotlib, Seaborn, OpenCV

**Development Tools** Git, Continuous Integration/Continuous Deployment (CI/CD), C/C++, MATLAB, NumPy, Python, PyTorch, scikit-learn, Jupyter Notebooks, SciPy, VS Code, TensorFlow

**Model Management and Tracking** MLflow, Weights & Biases


**Infrastructure and Deployment** GPU Training, ONNX, Cloud Platforms (AWS, Google Cloud Platform, Microsoft Azure), Containerization (Docker, Kubernetes)


**Soft Skills** Communication, Teamwork, Problem Solving, Self-management


**Natural Languages:** English (C2), German (A2-B1), Turkish (Native)

## DEMO PROJECTS

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**Capstone Project (Teamwork and Leadership)** Led a team of 5 students in an engineering design project spanning two semesters. Designed and implemented a product to address a specific problem under the guidance of Assoc. Prof. Fatih Kamışlı. The project report includes our top-down design process, performance test analyses, and visuals of the final product. Repository also includes scripts for training a model and running it on a Raspberry Pi and Arduino. See the project on GitHub: 

**A Literature Review on Voltage References (Documentation)** Conducted a comprehensive comparison of 30 state-of-the-art Voltage Reference Circuits published in the last 10 years (2010-2020). See the project on GitHub: 

**Hodgkin Huxley Model in MATLAB (Mathematical Modelling)** Implemented a software code to model the excitable membrane of an axon using the Hodgkin-Huxley (H&H) network model based on the rate constants for ionic channel conductivities determined by H&H. See the project on GitHub: 

**Real-Time Applications of DSP in MATLAB and LabVIEW (Embedded Systems)** Applied signal processing theory to real-world problems with a focus on practical applications and real-time processing in embedded systems. Utilized MATLAB, LabVIEW, and C to implement signal processing tasks on PC and a real-time embedded platform NI myRIO. See the project on GitHub: 