

# Aras Güngöre

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## EDUCATION

### Boğaziçi University

*B.Sc. in Electrical and Electronics Engineering; GPA: 3.62/4.00*

*Minor Degree in Computer Engineering; GPA: 3.58/4.00*

Istanbul, Turkey

*Sep 2018 – Jun 2023*

*Oct 2020 – Jun 2023*

## SKILLS

**Programming:** C/C++, C#, Java, Python, Go, JavaScript, SQL, Scala, MATLAB, R

**Technologies:** Django, Node.js, MySQL, Git, Docker, Amazon Web Services, Unity, Linux, Robot Operating System

**Libraries:** OpenCV, Scikit-Learn, PyTorch, Keras, TensorFlow, NumPy, Pandas, Matplotlib, Seaborn

**Languages:** Turkish (Native), English (Professional), German (Elementary)

## WORK EXPERIENCE

### SemperTech

*Software Engineer*

Istanbul, Turkey

*Sep 2023 – Present, Full-time*

- Currently working on the “Arçelik Digital Home Energy” project in a collaborative effort with DAI-Labor at the Technical University of Berlin under the supervision of Prof. Dr. Şahin Albayrak.
- Simulated data exchange processes with the EEBUS protocol suite using C# and Go frameworks. Converted the entire framework from Go to C++ in order to ensure future adaptability for smart home IoT devices.

### Scale AI

*Prompt Engineer*

San Francisco, California, United States (Remote)

*Jul 2023 – Sep 2023, Freelance*

- Developed effective Turkish prompts for diverse AI tasks and maintained a high standard of prompt quality and consistency across different competencies, adhering to established guidelines and best practices.
- Engaged in collaborative meetings with cross-functional teams and project coordinators, actively seeking guidance, addressing queries, and collectively brainstorming strategies to generate higher quality prompts.

### SESTEK Speech Enabled Software Technologies

*AI Research and Development Intern*

Istanbul, Turkey

*Jan 2022 – Feb 2022, Internship*

- Implemented various NLP tasks, including NER, POS tagging, sentiment analysis, text classification, and extractive/generative QA using transformers and Hugging Face libraries. Conducted a literature review on information retrieval and reading comprehension to stay updated on the state-of-the-art ML models.
- Developed a generative question answering system with Dense Passage Retrieval and Retrieval-Augmented Generation techniques using the Haystack framework on Python.
- Worked on a Turkish open-domain question answering system by fine-tuning a BERT base model transformer with PyTorch. Evaluated exact match and F1 scores using different Turkish data sets and DeepMind’s XQuAD data set and then tabularized the evaluation results.

## RESEARCH EXPERIENCE

### Max Planck Institute for Intelligent Systems

*Undergraduate Researcher*

Stuttgart, Baden-Württemberg, Germany

*Jun 2022 – Aug 2022, Internship*

- Worked in the Robotics, Collectives and Learning subgroup at the Physical Intelligence Department with former Ph.D. students Sinan Özgün Demir and Alp Can Karacakol on a project about 3D printing and heat-assisted magnetic programming of soft machines under the supervision of Prof. Dr. Metin Sitti.
- Updated a ROS package for converting 3D motion controller events to ROS messages so that it synchronously operates at any given loop rate with C++.
- Implemented an Arduino Mega driver for controlling a fluid dispenser, a laser, thermocouples, and a coil set. Updated ROS nodes for parsing G-codes and controlling stage movement and built the ROS-Arduino communication network to simulate a 3D printing and magnetic programming process with Python.
- Designed the project’s system and software architecture, algorithm flowchart, and state machine diagram. Implemented and debugged ROS nodes by validating each corresponding hardware component functions correctly.

- Worked on the project “Design and Implementation of Molecular Communication Systems Using Index Modulation” under the supervision of Prof. Dr. Ali Emre Pusane.
- Simulated the Brownian motion of molecules in a SISO MCvD system and predicted simulation parameters such as receiver radius, diffusion coefficient, and transmitter-receiver distance using CNNs with Keras and TensorFlow.
- Plotted the arrival of molecules per symbol duration in a SISO MCvD system using Binomial, Poisson, and Gaussian model approximations with MATLAB.
- Ran Monte Carlo simulations of the Gaussian model to encode/decode randomized binary sequences in a SISO MCvD system using BCSK modulation technique and calculated the bit error rate (BER) on Z-channel.

## AWARDS & ACHIEVEMENTS

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**High Honors Degree:** Awarded to Bachelor alumni who have graduated with a GPA greater than or equal to 3.50 by Boğaziçi University. (Jul 2023)

**TÜBİTAK 2247-C Intern Researcher Scholarship:** Awarded to undergraduate students who take part in research projects carried out by the Scientific and Technological Research Council of Turkey (TÜBİTAK). (Dec 2021 – Jun 2022)

**National University Admission Exam (YKS):** Ranked 75<sup>th</sup> in Mathematics and Science among ca. 2.3 million candidates with a test score of 489.92/500. (Jul 2018)

**KYK Outstanding Success Scholarship:** Awarded to undergraduate students who have been ranked in the top 100 on National University Admission Exam by Higher Education Credit and Hostels Institution (KYK). (Sep 2018 – Jun 2023)

**Boğaziçi University Success Scholarship:** Awarded to undergraduate students who have been ranked in the top 100 on National University Admission Exam by Boğaziçi University. (Sep 2018 – Jun 2023)