


MUHAMMED KAYRA BULUT

Computer Engineer, MSc.

Istanbul, Turkey

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EDUCATION

Yildiz Technical University - Master **09 2023 – 12 2024**
Computer Science - GPA - 3.71 - Master's thesis about the LLM in health data *Istanbul, Turkey*

Yildiz Technical University - Licence **09 2020 – 06 2023**
Computer Engineering - GPA - 3.67 - 3rd *Istanbul, Turkey*

Suleyman Demirel University **09 2019 – 09 2020**
Faculty of Dentistry - GPA - 3.32 - Not Graduated *Isparta, Turkey*

COURSEWORK / SKILLS

- | | | |
|-------------------------|--------------------------------|----------------------|
| • Python | • Android Development | (DBMS) |
| • C++ | • Robot Operating System (ROS) | • Web Scraping |
| • LLM | • OpenCV | • Firebase |
| • C | • Deep Learning | • NumPy |
| • Git / GitHub / GitLab | • Natural Language Processing | • Pandas |
| • Java | • Assembly x8086 | • Embedded Systems |
| • Kotlin | • Matlab | • Genetic Algorithms |
| • SQL / PostgreSQL | • Database Management Systems | |

PROFESSIONAL EXPERIENCE

TUBITAK BILGEM  **Jun 2023 – In Progress**
Software Engineer *Kocaeli, Turkey*

- I started as a full-time employee. I used C++ and Python3 in my work. I also actively used the PyQt framework in Python and Protobuf, nlohmann/json, and gtest framework in C++.
- In addition, I utilized various libraries such as matplotlib, numpy, requests, cv2, shutil, pillow, CairoSVG, pandas, and beautifulsoup in Python. For C++, I worked with cmake, curl, libssh, and thread.

INTERNSHIP

TUBITAK BILGEM  **Jan 2023 – Jun 2023**
Scholarship *Kocaeli, Turkey*

- Participated in the TÜBİTAK scholarship program, where I focused on **socket programming** using C++. I developed applications in an **Ubuntu** environment and utilized the **Botan** library for cryptographic functions.

TCDD Technical  **Jan 2023 – Feb 2023**
Intern *Istanbul, Turkey*

- Completed a general internship where I successfully **developed a user interface using the Tkinter library in Python**. The application allowed users to navigate between images of train stations, enhancing their overall experience.

Mobillium  **Jul 2022 – Aug 2022**
Intern *Istanbul, Turkey*

- Completed an official internship, where I created a **notebook application** using **Kotlin**. I designed the user interface with the help of **Figma**, ensuring a user-friendly experience.

PUBLICATIONS AND RESEARCH

• Published Articles

- Bulut, M. K., & Diri, B. (2024). Artificial Intelligence Revolution in Turkish Health Consultancy: Development of LLM-Based Virtual Doctor Assistants. In 2024 8th International Artificial Intelligence and Data Processing Symposium (IDAP) (pp. 1-6). IEEE.

• Theses

- Bulut, M. K., & Diri, B. (2024). Fine tuning performance of large language models on health data [Master's thesis]. Yildiz Technical University.

PROJECTS

High Availability Automation Project

April 2024 - Present

- Developed Bash scripts that automate the installation and configuration of PostgreSQL and DNS servers to achieve high availability. Technologies used: Bash, Docker, Patroni, HAProxy, ETCD, Keepalived, GlusterFS, Bind9.
- Integrated technologies like Patroni, HAProxy, ETCD, Keepalived, and GlusterFS to provide full redundancy and load balancing.
- Enhanced service isolation and portability using Docker containers, facilitating easy deployment and management.

Git Hit Monitor | Python3, beautifulsoup4

Aug 2024 - In Progress

- Developed a tool to monitor GitHub repository views and store data in Google Sheets using Python.
- Implemented automated data collection using requests, beautifulsoup4, and Google Cloud APIs.
- Created JSON-based configuration system for customizing monitoring parameters and permissions.

QR Code Generator | Python3, PIL, qrcode

Aug 2024 - In Progress

- Developed a Python script for generating customized QR codes with WhatsApp-style titles and logos for all QR versions (1-40).
- Implemented features for customizable titles, logo insertion, and multiple output formats including SVG.
- Created a flexible CLI tool with extensive customization options using qrcode, Pillow, and other libraries.

YTÜ Computer Engineering Archive | Team Work

Nov 2023 - In Progress

- Maintaining a comprehensive repository of course materials, lecture notes, and projects for YTÜ Computer Engineering program.
- Organized educational resources with dedicated sections for courses, electives, and student reviews.
- Implemented collaborative contribution system with templates and guidelines for material uploads.
- Created detailed course information and professor profiles to aid student decision-making.
- Developed automated README generation system to maintain current repository information.

YTÜ Computer Engineering Archive Readme Creator | Team Work, PyQt6 Nov 2023 - In Progress

- Developed a GUI application using PyQt6 to create and manage README files for the YTÜ Computer Engineering Archive.
- Implemented features for editing README sections including course info, professor profiles, and repository guidelines.
- Created automated README generation system based on JSON data with integrated Git operations.
- Developed functionality to sync data from Google Forms for automatic course and professor ratings updates.

Network Technologies | Cisco, Network, VLAN

May 2023

- About STP, VLAN and Subnet projects prepared using Cisco.

Star Predict [↗](#) | Python, Deep Learning, AI, Dataset

May 2023

- Using old comments to predict how many stars the entered comment will give with the help of artificial intelligence.

TechTalk [↗](#) | Python, Angular, Deep Learning

May 2023

- Data Mining Project, chatbot about computer science.

Mobile Programming Project [↗](#) | Kotlin, Android, Firebase

April 2023

- Social media app for college graduates.

Mobile Programming Homework [↗](#) | Kotlin, Android, Firebase

April 2023

- Graduate announcement application.

Genetic Algorithm [↗](#) | Python, Text Classification

Mar 2023

- Text classification using genetic algorithm.

Computer Systems Security Homeworks [↗](#) | SQL, JavaScript, C Programming Language

Jan 2023

- Various research studies have been conducted on the security vulnerabilities of information systems.

Microcontroller Systems Homeworks [↗](#) | x8086 Assembly

Oct 2022 - Jan 2023

- It consists of projects made by using 8086 microprocessor and integrateds such as 8255, 8259, 8253.

Introduction to Natural Language Processing Project [↗](#) | Python, Regular Expressions

Dec 2022

- A chatbot project that can answer questions about Yıldız Technical University.
- RegEx code that can extract addresses bit by bit.

Computer Project [↗](#) | Python (Tensorflow sklearn etc.)

Dec 2022

- Comparison of machine learning (KNN, SVM, MNB) and deep learning (LSTM) methods based on estimation of emoji abilities.

Embedded System Project [↗](#) | Python (numpy, OpenCV etc.)

Nov 2022

- A Raspberry Pi 2-based system design that can be remotely controlled and integrated using Python programming language.

Object Oriented Programming Term Project [↗](#) | Java (Swing Framework)





May 2022

- Nerdle game written in java language with GUI.

Warehouse Management System [↗](#) | C Sharp (.NET Framework) — MsSQL

May 2022

- Warehouse management system accessible from the website.

Data Digital Signal Processing Homework  Matlab (App Designer)	Mar 2022
<ul style="list-style-type: none"> Plots the entered fourier series coefficients with GUI. 	
Robot Operating System  Python (ROS and OpenCV frameworks)	Feb 2022
<ul style="list-style-type: none"> Mapping with OpenCV using Laser and Odometry. 	
Assembly Homework Project  x8086 Assembly	Dec 2021
<ul style="list-style-type: none"> 32 bit multiplication with 16 bit registers. Implemented linked list data structure with x8086 Assembly. 	
School Information Program  C Programming Language	Nov 2021
<ul style="list-style-type: none"> School management application for structural programming term project. Implemented basic RDBMS example in C Programming Language using "txt" files as database. Stored each entity as a linked list data structure. 	
TECHNICAL SKILLS	
Languages: Python, C++, C, Java, Kotlin, SQL Developer Tools: VS Code, Android Studio, DevCpp, PgAdmin, PyCharm, Git Technologies/Frameworks: Linux, PostgreSQL, PyQt, Patroni, Docker, GlusterFS, Keepalived, HAProxy, etcd, SSH, JSON, XML, UML, GoogleTest, CMake, Transformers, OpenCV, NumPy, Pandas, Firebase, RESTful APIs, BeautifulSoup, Android SDK, TensorFlow, Keras Databases: PostgreSQL, SQLite Other: Machine Learning, Deep Learning, Natural Language Processing, Web Scraping, Embedded Systems, Robot Operating System (ROS)	
EXTRACURRICULAR	
International Student Club <i>Board Member</i>	Sep 2022 – Jun 2023 <i>Istanbul/Turkey</i>
<ul style="list-style-type: none"> Organize travel, courses, camps etc. for international students. 	
My Neighbor Project <i>Volunteer</i>	Jun 2022 – Jun 2023 <i>Istanbul/Turkey</i>
<ul style="list-style-type: none"> Distributing food for needy people. 	
Education Officer in Dormitory <i>Student Manager</i>	Sept 2021 – Jun 2023 <i>Istanbul/Turkey</i>
<ul style="list-style-type: none"> Organize travel, courses, camps etc.. 	
Volunteer Youth Leader <i>Lead</i>	Oct 2021 – Jun 2023 <i>Istanbul/Turkey</i>
<ul style="list-style-type: none"> Support and organized volunteering activities in The Ministry of Youth and Sports . 	
My Neighbor Project <i>Volunteer Manager</i>	Sept 2021 – Jun 2022 <i>Istanbul/Turkey</i>
<ul style="list-style-type: none"> Organizing and distributing food for needy people. 	
Volunteer Math Teacher <i>Teacher</i>	Oct 2019 – Mar 2020 <i>Isparta/Turkey</i>
<ul style="list-style-type: none"> Tought math for middle school students. 	
Safa foundation summer school <i>Assistant Teacher</i>	Jun 2016 – Sep 2016 <i>Kayseri/Turkey</i>
<ul style="list-style-type: none"> I taught the Holy Quran to secondary school students. 	

CERTIFICATIONS

- Red Hat System Administration I 9.0
- Red Hat System Administration II 9.0
- Red Hat OpenShift I: Containers & Kubernetes 4.10
- PostgreSQL Database: From Beginner to Advanced