Taha Mert Gökdemir

Senior Software Engineer (C/C++/Linux System Programming)

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About Me:

I am an experienced Software Engineer with a strong focus on C/C++ and Linux system programming. I excel in developing high-performance applications, optimizing systems, and handling real-time communications. I also have a solid background in simulations and graphics APIs, and I'm skilled in application and game engine programming, using both Unreal (C++) and Unity (C#).

Experience

Senior Software Engineer

Born Immersive | June 2023 – Present | London, UK
As a Senior Software Engineer, I specialize in C/C++ development for high-performance XR applications and backend services.

- **Graphics API Development**
- Developed industrial graphical applications using **Vulkan** and **OpenGL** on **Linux** for real-time training and simulation systems.
- **C++ SDK & Networking**
- Designed and implemented core modules in **C++**, including cross-platform support for Linux-based systems using **POSIX** APIs.
- Integrated real-time communication between XR devices and backend services, improving data transmission speed and reliability.
- Implemented low-level **UDP/TCP socket communication** for multiplayer XR environments, ensuring real-time performance.
- **Project Leadership**
- Led the Bottling Machine Lockout Procedure Simulation project, utilizing **C++** for logic and **socket programming** to manage synchronized multi-user sessions.

Tech Stack: C++, OpenGL, Vulkan, Linux System Programming, POSIX, Sockets, Unity, XRITK, MRTK

Software Engineer

Havelsan | February 2022 – June 2023 | İstanbul, Turkey
Worked in the Advanced Technologies Department with a focus on C/C++ development for XR and real-time simulation systems.

- **Linux System Programming & VR Development**

- Developed core VR simulation systems using **C++** and **Unreal Engine**.
- Developed core VR simulation systems using **C#** and **Unity Engine**.
- **Networked Real-Time Simulations**
- Designed and implemented a scalable etwork layer using **C++** and **TCP/UDP sockets** for a multi-user military simulation environment interoperable between GNU and Windows.
- Ensured low-latency communication between simulation servers and VR clients, achieving real-time response rates.

Tech Stack: C++, Unreal Engine, C#, Unity Engine, Sockets (TCP/UDP), OpenXR, Compute Shaders, Hololens 2

Senior Software Engineer

C Tech Information Technologies Industry and Trade Inc. | April 2021 – February 2022 | İstanbul, Turkey
Focused on data transmission and visualization solutions for military-grade communication systems.

- **C++ Simulation Framework Development**
- Built a development GUI using QT Framework and C++ for military-grade communication systems.
- Built a consumer GUI using web front end technologies such as vue and implemented the necessary data-distribution pipeline on rtos system that proxies data from memory to rabbitMQ to http (using lighthttpd c++ library).
- Built some modules for monitoring the communication quality using python.
- **System Optimization & Interfacing**
- Developed optimized **C++ modules** for handling high-throughput data streams on Linux, employing multi-threading and IPC mechanisms for performance improvements.

Tech Stack: C++, RTOS, Linux System Programming, pthreads, POSIX Sockets, Python, REST, Vue.j

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Software Developer

Soar Robotics | November 2019 – April 2021 | İstanbul, Turkey
Focused on **C/C++ development** for drone simulations and communication systems.

- Developed **real-time UAV simulations** using **C++** and **Unreal Engine**.
- Implemented **socket programming** with **TCP/UDP** for real-time drone-to-ground communication.
- Worked on **V2X** simulations with **SUMO**, **Veins**, and **NS2** for autonomous driving use cases.
- Built **Simulair**, a distributed simulation platform using **Unity** and **AWS** (with some other web technologies.)

Tech Stack: C++, Unreal Engine, Linux System Programming, TCP/UDP Sockets, SUMO, Veins, NS2, AWS

Software Developer(Part-Time)

WalkOVR | October 2018 – August 2019 | İstanbul, Turkey
Focused on C/C++ development for VR motion systems with Linux-based sensor integration.

- **VR Sensor Integration**
- Developed C++ modules to interface with motion sensors, using **Linux system programming** for real-time data acquisition and processing.
- Implemented **socket programming** to handle sensor data streaming and synchronization with VR applications.

Tech Stack: C++, Linux System Programming, Sockets, Unity, VR Sensors

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Education

Bachelor of Science in Electrical Engineering
Istanbul Technical University | 2016 – 2020 | İstanbul, Turkey
- **Final Thesis:** Developing a Tool with Python for EEG Data Analysis - **Courses Taken Parallel with Profession:** - Calculus - Differantial Equations - Linear Algebra - Numerical Methods - Microprocessor Programming - Numerical Circuits - Python Programming - Control Systems - Signals and Systems - Design of Electrical Vehicles

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Courses

C Programming Course
Institute: C System Foundation
- 200 hours of comprehensive training on C programming.

C++ Programming Course
Institute: C System Foundation
- ~300 hours of comprehensive training on C++ programming.

Karma XR Development Course
Institute: Koc University - ~200 hours of at place course for XR early adapters.

Timeline

2013 - Started at Istanbul Technical University in the Civil Engineering Department.
2015 - Went to the USA for the "**Work and Travel**" program.
2015 - Started a Mechanical Engineering Minor at ITU with a 3.3 GPA.
- Employed as a mechanical design intern at Robostate.
- Attended "**ARIGE**", the Student Robotics Club:
- Participated in Marmara Robot Olympics, securing second place and the Jury Special Award.
- Attended ODTÜ Robot Olympics.
- Worked with "**PARS ROCKET TEAM**" on the design and manufacturing of the rocket payload, and also in the software department. The team achieved fourth place at IREC.

2016 - Transferred to the Department of Electrical Engineering.
2016 - Co-founded ITU Rover Team:
- Led the robotic arm team.
- Developed the user interface for the rover.
- Joined "**OTG**", the game development club. Developed games, organized events, and participated in game jams.

2017 - Started working as a part-time junior software engineer at Robostate, continuing until the company closed in 2018.
2018 - Began working at WalkOVR:
- Attended the Karma XR Course. Developed Rainbow Bridge VR and received the "**Karmic Mention**" award.
- Ran a successful Kickstarter campaign with WalkOVR.

2019 - Started working at Soar Robotics, founded by the former founders of Robostate.
2020 - Graduated from Istanbul Technical University with a BSc degree in Electrical Engineering.
2021 - Joined CTech.
2022 - Began working at Havelsan.
2023 - Started working at Born Immersive.

Languages

Turkish: Native

English: - Overall IELTS Score of 7.0

Skills

- **Programming Languages**: C++, C, Python, C#, Javascript
- **System Programming**: Linux System Calls, POSIX APIs, Process Management, IPC
- **Embedded**: RTOS, Embedded Linux, Stm32
- **Devops and VCS**: Git, GitHub, Jenkins, GitHub Actions
- **Networking**: TCP/UDP Socket Programming, Multi-Threading, Real-Time Data Synchronization
- **Graphics APIs**: Vulkan, OpenGL, Compute Shaders
- **XR Frameworks**: Unity XRITK, MRTK, OpenXR, Hololens 2
- **Backend Technologies**: ASP.NET, REST, Flask, Microservices
- **Simulation & Robotics**: Distributed Systems, Drone Simulation, Real-Time Systems, Ros2