Youssef Essam

Turkey/Istanbul • Open to relocation • youssefessam.dev@gmail.com • +90 531 528 18 45 • https://www.linkedin.com/in/youssef02/

Summary

Mechatronics Engineer with a strong focus on software and embedded development, specializing in full stack applications (**React**, **TypeScript**, **Node.js**) and robotics/imaging systems. Experienced in building high-performance control and automation software using **Python**, **C++/QML**, **ROS2**, and real time data pipelines.

Education

Mechatronics Engineering *Sep 2020 - Feb 2025*

Bachelor's Degree - Yildiz Technical University

Experience

Software Engineer Istanbul, Turkey, In Office

Technomind Digital Systems *June 2025 - Current*

• Built and maintained the web control interface for a digital pathology device using **React**, **TypeScript** and **Tailwind CSS**.

• Implemented backend services using **Python (Flask)** and **TypeScript (Express.js)**

• Improved autofocus and scanning algorithms for high precision imaging, achieving an 818% increase in scanning speed that significantly enhanced device performance and contributed to higher sales.

• Refactored legacy codebases into clean, modular components.

• Collaborated cross functionally with hardware engineers to align software improvements with device capabilities.

Software Developer Istanbul, Turkey, Hybrid

Letna Marine Underwater Engineering Solutions *Feb 2023 - June 2025*

• Delivered feature updates and maintenance for Pyrot, a production level fork of **QGroundControl** built with **Qt (C++/QML)**, improving usability for **20+ ROV operators**.

• Implemented new ROV control modes (Distance Hold, Collision Avoidance) in **C++**, reducing operator error and improving navigation precision.

• Built a **Python** application for real-time distance estimation using dual laser alignment and **image processing**, improving measurement accuracy to **95.5%**.

• Created custom **QML** HUD overlays that streamlined **UI/UX** by surfacing critical sensor data without obstructing the operator's field of view.

Software Developer Istanbul, Turkey, Hybrid

Lagari UAV team *Jan 2022 - June 2022*

• Participated in the 2022 **TEKNOFEST** International UAV Competition as part of the software team, developing autonomous flight logic and target detection systems.

• Built real-time target detection and geolocation pipeline using **Python** and **OpenCV**.

• Integrated autonomous navigation logic into the UAV control stack for payload delivery.

Projects

Portable Knee Rehabilitation Robot - TUBITAK 2209-B Support Programme *Github: Raspberry Pi Code | Qt Android App Code*

Technologies: **Python, ROS2, Qt (C++/QML)**

• Built **ROS2** based control architecture on **Raspberry Pi** for real time sensor integration and motor control.

• Developed custom PID controllers for adaptive rehabilitation exercises.

• Implemented three software modes (Training, Exercise, Impedance), switchable via Bluetooth commands.

• Created an Android-compatible **Qt/QML GUI** for real time feedback and knee angle visualization.

• Established reliable **Bluetooth RFCOMM communication** for command and sensor data transfer.

Personal Portfolio Website *https://youssefessam.com*

Tech Stack: **React.js**, **Vercel**

• Developed a responsive portfolio website using React.js to present key projects across full-stack, embedded, and robotics domains.

Skills

Programming languages : **Python**, **C++**, **JavaScript**, **TypeScript**, **HTML**, **CSS**

Web & Application Frameworks: **React.js**, **Next.js**, **Tailwind CSS**, **Node.js**, **Express JS, Flask, Qt (C++/QML)**

Tools & Technologies: **Git**, **GitHub**, **Linux**, **ROS2**, **Arduino**, **Raspberry Pi**, **Figma**

Languages: **Turkish (C1)**, **English (C1)**, **Arabic (C1)**