Ahmed Belkhiri

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Experience

Embedded Software Engineer Mar. 2024 – Present
MARE CUSTOS *Ariana, Tunisia*

- Designing and developing drivers for **STM32 micorcontrollers**.
- Integrating the **micro-ROS** and **FreeRTOS** into the firmware on **IAR Workbench** framework.

Robotic engineer Feb. 2024 – Present
SHANON TECHNOLOGIES — Part Time *Toulouse, France*

- Constructing mechanical systems.
- Creating schematic blocks and developing software applications for robotics projects.

Computer Vision Intern Jun. 2023 – Sep 2023
HYDATIS *Tunis, Tunisia*

- Spearheaded the development of a **face detection** system and created a user-friendly **Python interface**.
- Engineered an **anti-spoofing system**, incorporated innovative techniques such as **3D depth detection**.

Research and Development Intern Jul. 2022 – Sep 2022
MARE CUSTOS *Tunis, Tunisia*

- Designed an autonomous robot using **SOLIDWORKS** for the inspection of pipelines.
- Implemented a **PID controller** algorithm for precise navigation.

Robotic Instructor May 2022 – May 2024
DISCOVERY CLUB JUNIOR — Part Time *Manouba, Tunisia*

- Instructed students in **C/C++** programming and supervised multiple student projects.

Projects

Face Tracker | *Python, C, Computer Vision, STM32, Solidworks* Jul 2023 – Sep 2023

- Developed a face tracking script using the **MediaPipe** library to **detect faces**.
- Programmed **STM32** for motor control and established local communication with R**aspberry Pi 4** via **UART**.

Chess-Playing Robot | *Python, C, Computer Vision, Solidworks, Inverse Kinematics* Jan 2023 – May 2023

- Implemented the **inverse kinematics** algorithm to control the **robotic arm**.
- Built a **computer vision** system to **detect**, **identify**, and **track** the chessboard and chess pieces on the board.

EUROBOT | *Python, C, C++, STM32, Arduino, Solidworks, Proteus, ROS, PID Controller* Sep 2021 – Jun 2022

- Designed two robots meeting specification document requirements, with a focus on **mechanical design**.
- Engineered a **3-axis robotic arm** controlled by an **Arduino microcontroller**.
- Implemented velocity and position control using a **PID controller** on an **STM32 microcontroller**.
- Established local communication for the robots through the **ROS** (Robot Operating System) ecosystem.

Technical Skills

Languages: C/C++, Python, Java, SQL, JavaScript, HTML/CSS
Frameworks: STM32CUBE, IAR Workbench, Arduino, OpenCV, TensorFlow, QT,
Developer Tools: Git, Solidworks, Proteus, Catia, STM32CubeIDE, VS Code, Visual Studio, PyCharm, Eclipse

Organisations

Association of Robotics Techniques Sep. 2022 – Present
AeRobotiX INSAT Oct. 2020 – Present
Tunisian Association Mathematical Sciences Aug. 2015 – Jun/2020

Language

English: Advanced **French**: Advanced **Arabic**: Native **Deutsh**: Beginner

Education

National Institute of Applied Science and Technology Tunis, Tunisia
Industrial computing and automation engineering *Sep. 2020 – Jun Present*