Abdelrahman Abdellatif

Mechatronics and Robotics Engineer

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Mechatronics engineer with a passion for robotics, unmanned aerial systems, and embedded technologies. Skilled in C/C++, Python, ROS, SolidWorks, and Fusion 360, with strong foundations in control systems, electronics, and UAV flight dynamics. Experienced in developing autonomous navigation robots, flight software, and mechanical prototypes, bringing together software, electronics, and design into practical solutions. A fast learner and problem-solver, eager to contribute creativity and technical expertise to next-generation aerospace and robotics projects.

Work Experience

Drone Systems Engineer

Nov 2024 - Present

BalticML | Riga

As a UAV Systems Engineer at BalticML, I contributed to the development of a quadrotor drone for civil defence applications, working across software, electronics, and mechanical design. My role included developing embedded software in C++ and Python for flight control and sensor integration, designing and prototyping mechanical components in SolidWorks and Fusion 360, and supporting the integration of electronic systems such as sensors, microcontrollers, and power modules. I also participated in simulation and flight testing, analyzing performance data to optimize stability and reliability.

INTEGRATED CIRCUIT HARDWARE ENGINEER

Sep 2024 - Jan 2025

| *GIZA*

As part of a self-study journey in Logic Design a critical skill for embedded systems and robotics I developed a 4-bit ALU capable of performing both arithmetic operations, such as addition and subtraction, and logical operations, including AND, OR, XOR, XNOR, NAND, and NOR. During this process, I mastered foundational concepts such as Boolean algebra, logic gates, combinational and sequential logic, and digital integrated circuits. I designed and simulated circuits using online tools, and when faced with simulator limitations, I overcame them by building all components from scratch using logic gates. Ultimately, I physically implemented and tested a 4-bit adder/subtractor and various logic gates, achieving full functionality and solidifying my understanding of digital circuit design.

TEAM MEMBER IN RATS RIVER POLLUTION MITIGATION HACKATHON

May 2024 - May 2024

| *VALMIERA, LATVIA*

I developed an IoT system to monitor and address water quality issues in Valmiera's Rats River, designing solutions to combat pollution and tackle environmental challenges while ensuring effective and sustainable water management. This project was recognized for its innovation and impact, earning 3rd place at the LifeHack Valmiera City Planning and Innovation Hackathon.

3D MODELER AND DESIGNER

Aug 2023 - Oct 2023

Nile Pioneers | GIZA, EGYPT

Completed extensive 3D modeling training using SolidWorks at Nile Pioneers. Designed and modeled a comprehensive helicopter drone as the final project. Developed detailed technical drawings and

assembly instructions. Collaborated with instructors and peers to refine design and enhance modeling techniques.

TEAM LEADER IN AUTONOMOUS NAVIGATION TURTLEBOT PROJECT

Apr 2022 - Jul 2022

Led a team in designing and developing an autonomous navigation TurtleBot. Utilized Robot Operating System (ROS) for advanced navigation and control algorithms. Integrated sensors and hardware for real-time environment mapping. Coordinated team efforts in coding, testing, and troubleshooting to ensure seamless functionality.

TEAM LEADER IN INDUSTRIAL ROBOTICS ENGINEERING PROJECT

Feb 2022 - Jun 2022

Nile University | GIZA

Contributed to the design, manufacturing, and control of an industrial robot arm. Utilized SolidWorks for detailed 3D modeling, ensuring precision and functionality in design. Programmed the robot arm using Arduino. Gained hands-on experience in integrating mechanical and electronic systems for industrial applications.

Core Skills

Robotics, Embedded systems, Linux Command line, C++, C programming, Python, Mechanical Design

Education

Riga Technical University

Mechanical Engineering/ Mechatronics

Languages

English *(C1)*, **German** *(B2)*, **Latvian** *(A1)*