MOHAMED HOSSAM ABDEL RAZEK
SOFTWARE ENGINEER

Alexandria, Egypt

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Summary

A passionate Software Engineer with hands-on experience in developing complex software systems through robotics projects, including ROV stabilization and rover control systems. Experienced in building structured, scalable solutions and handling system-level logic, with a strong foundation adaptable to backend development for web-based applications.

Experience

Robo-tech team   2023 – present
Software Engineer   *Alexandria, Egypt*

- Designed a Rover control system and implemented its navigation system.
- Researched and developed a PID controller for ROV stabilizing.
- Implemented an ROV control system using ROS and Python.

Victoria College   2018
Software Developer   *Alexandria, Egypt*

- Developed and implemented a software system to enable a wheeled robot to navigate autonomously using Robocup's Cospace simulation.
- Enhanced the point collection and prioritization algorithm for rapid point gain.

Education

Computer and Communications Engineering   Oct. 2022 – present
Undergraduate at the Faculty of Engineering, Alexandria University   *Alexandria, Egypt*

High School Diploma   Sept. 2008 – July 2022
Victoria College, Graduated from the national program   *Alexandria, Egypt*

Projects

Underwater ROV Control System | Python, Raspberry pi, ROS, SOLID Principles, Git/Github   April 2025

- Designed a vectorized thruster control system for 6 motors (4 horizontal at 45°, 2 vertical at 90°) to translate joystick inputs into precise 3D movement, ensuring smooth underwater navigation.
- Developed a real-time stability system using PID control, compensating for drift/thruster errors by processing feedback from IMU (Euler angles through the built in sensor fusion) and pressure sensor (depth).
- Introduced a logging system (info/errors/warnings) for debugging.
- Implemented defensive programming practices, including tailored exception handling (custom exceptions + handlers) and logging strategies to ensure fault tolerance.
- Automated a mission where the ROV performs 360° rotation, integrated with photosphere camera stream to capture screenshots at the desired intervals.
- Presented the system architecture, control features, and the stability system to a panel of academic judges (professors and engineers), highlighting the system's robustness, reliability and solid technical design.

ConnectHub | Java, Json, Git/Github   December 2024

- Developed backend for a social networking platform adhering to SOLID object-oriented design principles and employing industry-standard design patterns.
- Implemented core features including user authentication, real-time messaging, and notification systems to enhance user interaction and engagement.
- Managed the data using a JSON database for efficient and lightweight data handling.
- Utilized Git for version control, ensuring seamless teamwork and adherence to coding standards.

Skills

- C
- Java
- Python
- HTML
- CSS
- JavaScript
- OOP
- Data structures
- Design patterns
- Defensive programming
- Git/GitHub
- ROS
- Raspberry pi
- Latex
- Team player
- Communication skills
- Time management
- Presentation skills

Languages

- Arabic: Native

- English: Fluent

Competitions & Achievements

Underwater Robotics Challenges (UWRC 2024) | 3rd Place   **September 2024**
- Awarded 3rd place.

Unmanned Maritime Vehicle Competition (UMVC 2024) | 6th Place   **July 2024**
- Secured 6th place and received a Certificate of Participation.

RoboCup Cospace (2018) | 2nd Place & International Qualification   **March 2018**
- Achieved 2nd place in the national competition and qualified for the RoboCup Internationals in Dubai.