# Bassam Ahmad

FULL-STACK DEVELOPER

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## Summary

Mechatronics Engineering graduate with a strong foundation in automatic control systems, computer vision, and artificial intelligence. Experienced in designing and programming autonomous systems (AMR) using ROS, C++, and Python. Eager to contribute technical expertise to innovative engineering roles or advanced academic programs.

## Education

**Homs University, BS Mechatronics Engineering** **2026**

**Key Focus:** Real-time control systems, digital image processing, and artificial intelligence.

## Projects

**Autonomous Mobile Robot (AMR) with a Flexible Arm (Graduation Project)**

- Designed and implemented the mechanical structure and electrical wiring for a mobile robot.
- Programmed the system using **ROS** and utilized **ArUco markers** for navigation and localization.
- Integrated an **ESP32** camera for computer vision and task tracking.

**Underwater Image Enhancement (Computer Vision Project)**

- Implemented and optimized algorithms based on peer-reviewed research papers to enhance underwater image clarity, focusing on color correction and noise reduction.

**CNN from scratch**

- Created the CNN layers with forward and backprop methods
- Created the MSE loss error and the SGD optimizer
- Programmed using only numpy library

## Skills

**Programming Languages:** C++, Python, MATLAB

**Robotics & Control:** ROS, Industrial Automation, Microcontrollers

**Computer Vision & AI:** OpenCV, PyTorch, Image Enhancement, Machine Learning.

**Applied Mathematics:** Linear Algebra, Probability & Statistics, Game Theory, Kalman Filters.

**Tools & Systems:** Git, Linux/Ubuntu System Administration, Web & Mobile Development Basics.

## Languages

- **Arabic:** Native.
- **English:** Upper-Intermediate (B2).