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Syr,lattakia

EDUCATION

Bachelor's Degree

University of Aleppo 2003-2008

Bachelor of Media and Journalism

Wardiere university 2009-2012

SKILLS

- Programming Languages: Python, C/C++, MATLAB/Simulink
- Computer Vision: OpenCV, MediaPipe, YOLO, Camera Calibration, Perspective Transformation
- Deep Learning & ML: CNNs, Model Training & Evaluation, Hyperparameter Optimization.
- Embedded Systems: Arduino, Raspberry Pi, Microcontroller Programming
- Mechatronics: System Integration, Control Systems, Mechanical Design Basics
- Research & Development: Academic Publishing, Experimental Design, Data Analysis
- Tools & Libraries: TensorFlow/Keras, PyTorch, NumPy, ROS (Robot Operating System)
- Other Skills: Real-time Systems, Performance Optimization, Technical Writing

LANGUAGES

- **Arabic:** Native.
- Professional / Academic Proficiency (Research Publishing Level).

AHMAD ZENAH

MECHATRONICS ENGINEER |
COMPUTER VISION & AI DEVELOPER |
RESEARCH SCIENTIST

ABOUT ME

Mechatronics Engineer and Research Scientist with extensive hands-on experience in robotics, automation systems, computer vision, and artificial intelligence. Combines deep expertise in embedded systems, microcontroller programming (Arduino, Raspberry Pi), and mechanical-electrical integration with advanced computer vision development using Python, OpenCV, and MediaPipe. Published multiple peer-reviewed research papers in leading scientific repositories including HAL open science. Specializes in designing real-time interactive systems, motion-controlled applications, and industrial automation solutions with strong academic research background in machine learning and optimization algorithms.

EXPERIENCE

Computer Vision & AI Developer (Independent Projects)

2017 - Present

- Designed and implemented real-time interactive systems using Python, OpenCV, MediaPipe, and Pygame
- Developed camera-based control systems converting user movements and objects into real-time actions
- Built multi-player systems with split-screen logic, independent scoring, timers, and visual effects
- Integrated YOLO object detection for real-time ball tracking and interaction
- Applied camera calibration and perspective correction to enhance spatial accuracy
- Designed dynamic mechanics including moving targets, intelligent agents, and automated scoring

Machine Learning & Deep Learning Researcher

2018 - 2025

- Trained CNN models on medical image datasets for classification tasks
- Implemented Ant Colony Optimization (ACO) for automatic hyperparameter selection (learning rate, batch size)
- Evaluated models using validation accuracy, loss curves, and confusion matrices
- Developed prediction pipelines for unseen images with improved accuracy
- Published research findings in HAL open science repository

Mechatronics Engineer & Industrial Automation Developer

2008 -Present

- Designed and implemented automated quality control systems for manufacturing environments
- Developed vision-based inspection systems for detecting non-conforming packages on production lines
- Integrated sensor fusion systems combining visual data with proximity, pressure, and position sensors
- Programmed PLC and microcontroller-based control systems for automated rejection mechanisms
- Optimized production line efficiency through real-time monitoring and adaptive control algorithms

Academic & Technical Projects Summary:

Designed and deployed an industrial-grade automated quality control system that utilizes multi-camera computer vision and sensor fusion to detect packaging defects with 98.7% accuracy, significantly cutting costs and boosting production speed. Conducted and published research on enhancing this system through advanced machine learning models and predictive maintenance algorithms. developed interactive real-time applications using motion tracking and pose analysis for user-controlled systems, and created AI-driven sports simulations with autonomous agents using YOLO object detection.

Patents:

- **Real-Time Occlusal Interference Detection Device (Dental Applications)**
- Patent describing a smart system for detecting occlusal (bite) interferences in real time, combining sensor data and intelligent processing to assist dental diagnosis and treatment accuracy.