

Mohamed Hendawy

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Computer Vision Engineer | Machine Learning Engineer | Software Engineer

PROFESSIONAL SUMMARY

Computer Vision and Software Engineer with 4+ years of experience building real-time perception systems for robotics and video analytics. My background covers object detection, multi-object tracking, model evaluation, data pipelines, and production software development using Python and C++. I focus on reliable models and maintainable software for real-world deployment.

SKILLS

Core Expertise: Computer Vision, Machine Learning, Deep Learning, Robotics, Autonomous Systems, Object Detection, Segmentation, Multi-Object Tracking, Model Evaluation

Programming: Python, C++

ML Frameworks: PyTorch, TensorFlow, Keras

Computer Vision: OpenCV, Ultralytics, YOLO, RT-DETR, SAM, ByteTrack

Software Engineering: API and Service Integration, Automated Testing, Debugging, Code Review, Refactoring

Tools & Deployment: Docker, Linux, ROS, Gazebo, Git, GitHub, CMake, MQTT, SQLite, ONNX, TensorRT, AWS

Languages: Arabic (Native), English (Professional Working Proficiency)

PROFESSIONAL EXPERIENCE

AIVIS Studio

April 2026 - Present

Senior Computer Vision Engineer (Part-time)

Remote

- Supervised two computer vision engineers, coordinated task planning with the team lead, and contributed directly to building the kitchen safety and hygiene violation system
- Built object detection, person tracking, and temporal smoothing components, together with service contracts for downstream violation processing
- Trained and evaluated object detection models, improved data annotation workflows, and identified dataset leakage and diversity issues that guided data collection
- Created regression tools for scenario testing, hard-negative evaluation, reproducible experiments, and CI checks

Swap Robotics

June 2023 - Present

Computer Vision Engineer | Software Engineer

Remote (Canada)

- Designed and deployed real-time object detection, segmentation, and multi-object tracking pipelines using YOLO, RT-DETR, and TensorRT-optimized inference for autonomous robots
- Built multi-camera obstruction monitoring and roll, pitch, and yaw estimation from camera IMU data to improve perception and localization reliability
- Developed LiDAR-based mapping and path-planning tools for spatial awareness and autonomous navigation
- Used SAM and YOLO workflows for automated annotation and supervised segmentation labeling, improving dataset quality
- Contributed to autonomy and teleoperation safety features, including remote standby behavior, fault fallbacks, motion safeguards, and attachment controls
- Developed ROS and Gazebo simulation for an articulated robot platform, including kinematics, control bridges, diagnostics, path visualization, and regression testing

Devservers

November 2022 - July 2023

Machine Learning Engineer

Remote

- Designed anomaly detection models using LSTM and Attention mechanisms for NLP tasks
- Contributed to computer vision near-miss collision detection system with measurable impact on project delivery

Autotronics Research Lab

October 2021 - March 2022

Computer Vision Engineer Intern

Cairo, Egypt

- Researched and applied CNN architectures (AlexNet, MobileNet) for autonomous vehicle perception
- Gained experience reading and implementing techniques from scientific papers

EDUCATION

Higher Technological Institute <i>Bachelor of Engineering in Mechatronics (GPA: 3.33/4.00)</i> • Graduation Project: Rotary Autonomous Parking Garage (A+)	September 2017 - January 2022 10th of Ramadan City, Egypt
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PROJECTS

Vehicle Speed Estimation <i>Python, PyTorch, YOLO, OpenCV</i> • Built real-time vehicle speed estimation system from video using YOLOv11 for detection and ByteTrack for multi-object tracking • Calculated vehicle speed based on pixel displacement and camera geometry calibration	December 2025
AugmentLens <i>Python, OpenCV, Albumentations</i> • Created a Python library for visualizing Computer Vision augmentation pipelines • Enabled debugging and validation of image transforms before model training	December 2025
Handwritten Digit Recognition <i>Python, PyTorch</i> • Built CNN achieving 99.37% accuracy on MNIST digit classification • Demonstrated deep learning fundamentals with clean, well-documented code	December 2024
Rotary Autonomous Parking Garage <i>C, C++, Arduino</i> • Graduation project (A+ grade) - Optimized parking solutions by reducing space while increasing vehicle capacity • Controlled motors, sensors, and LCD interface using Arduino and AVR microcontrollers	August 2021 - January 2022

ACHIEVEMENTS

• 1st Place at Electric Vehicle Rally 2022 <i>Apex Racing Team</i>	Cairo, Egypt
• 1st Place at Global Electric Vehicle Competition 2021 <i>Apex Racing Team</i>	Remote

CERTIFICATIONS & COURSES

• Deep Learning Specialization 2022	Coursera (DeepLearning.AI)
• Convolutional Neural Networks in TensorFlow 2022	Coursera
• Advanced Learning Algorithms 2022	Coursera
• C++ Nanodegree 2020	Udacity
• Machine Learning with scikit-learn 2022	DataCamp