Hazem Abuelanin

Senior Computer Engineering student

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Summary

Final-year Computer Engineering student with a strong foundation in autonomous systems, robotics, and artificial intelligence. Demonstrated leadership in founding and managing high-performing teams across competitive engineering challenges. Specialized in full-stack autonomy development, including perception, planning, and control, using ROS2, C++, Python, LiDAR, computer vision, deep learning, and embedded systems. Proficient in delivering real-time, efficient, and scalable autonomy solutions in both simulated and real-world environments.

Experience

Shoubra Autonomous Racing Team **2024 - 2025**
Founder & Team Lead

•Founded the first autonomous vehicle team at Benha University.

•Led formation of the Shell Eco-marathon autonomous Team.

•Established the university's first F1TENTH autonomous racing team.

•Initiated the Formula Student AI team.

•Designed the initial hardware framework for the college's first autonomous vehicle.

Shoubra racing team **2023 - 2024**
Embedded systems team member

Participated as an embedded systems engineer in the team's electrical car by developing and integrating embedded systems using AVR Microcontrollers.

Education

Benha university, Shoubra faculty of Engineering Undergraduate
Bachelor of Computer Engineering | Expected Graduation: June 2026
GPA: 3.35/4.0

Projects

Designing a fully autonomous vehicle for Shell Eco-marathon Competition **Dec 2024 - May 2025**
• Designed and implemented a complete autonomous driving stack on CARLA simulator including computer vision, LiDAR processing, and sensor fusion. • Developed energy-efficient motion planning algorithms. • Built a real-time decision-making system for autonomous navigation.

Mobile Robot for Emirates Robotics Competition **Dec 2024 - Apr 2025**
• Designed an autonomous navigation system for a TurtleBot3 robot. • Implemented computer vision with OpenCV and YOLOv10 for object classification. • Developed path planning and debris collection in unknown environments. • Integrated depth estimation and sensor fusion for perception.

Autonomous racing vehicle for F1TENTH competition **Sep 2024 - Oct 2024**
• Developed an autonomous racing system using C++, ROS2, and LiDAR processing algorithms.

Autonomous Vehicle for Electrical Vehicle Rally in Egypt **Feb 2024 - Jul 2024**
• Developed a full autonomous system using ROS and VREP with LiDAR, mono/depth cameras, and IMU.

Distance alarm ECU **Mar 2024 - Apr 2024**
• Designed a system for detecting close objects to the rear of the car using AVR microcontrollers, used in the electrical vehicle rally competition.

Skills

Programming
C - C++ - Python - Java - Dart

Robotics
ROS - ROS2 - Perception - Motion planning - SLAM - Controlling

Embedded software engineering
Embedded C - Microcontrollers interfacing - Communication protocols - Microcontrollers architecture

Artifical intelligence engineering
Data analysis - Machine learning - Deep learning - Computer vision - NLP

Tools & Frameworks
CARLA - CoppeliaSim - Gazebo - Docker - Git - Linux - TensorFlow - PyTorch - Hugging Face

Awards

Second place worldwide Shell Eco-marathon APC **June 2025**

Secured 2nd place out of 24 international teams representing Egypt in the autonomous programming category.

Fourth place globally at F1TENTH Competition **October 2024**

Achieved 4th place out of 58 international teams in the F1TENTH Simulation League.

Third place over Egypt in the autonomous cars competition - EVER - Electric Vehicle Rally **August 2024**

Ranked 3rd in autonomous system design among 15 Egyptian universities.

Training

Digital Egypt Pioneers **April 2024 - September 2024**
Microsoft Machine Learning Engineer Trainee

Completed comprehensive machine learning engineering program covering advanced ML algorithms, model deployment, and production systems

Languages

Arabic
Native

English
Full Professional Working Proficiency