

Maria Roshdy

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EDUCATION

Arab Academy for Science and Technology

El-Alamein, Egypt

Bachelors - college of artificial intelligence, intelligent systems; Senior Undergraduate GPA: 3.83

2020 – Expected 2024

EXPERIENCE

• RoboCup, Line tracking, participant.

Feb 2021

Participated in RoboCup's line tracking challenge, building an Arduino-based car to follow lines autonomously. Developed skills in sensor integration and real-time control.

• RoboCup@Home, Education, participant.

Jul 2022 – Feb 2024

Competed multiple times **coached three teams achieved first, third, fourth places this year**, Utilized TurtleBot2 for RoboCup@Home challenge, enhancing the robot's ability to perform domestic tasks autonomously. Explored human-robot interaction and navigation in unstructured environments.

• ACPC.

Aug 2020 - Aug 2022 Aug 2023

Competed multiple times, culminating in qualification for ECPC. Demonstrated strong problem-solving, algorithmic, and coding skills.

• DEBI Robotics Challenge

May 2023

The Challenge is a competition between robots in one-vs-one matches that take place in a predefined playground. Using TurtleBot3 robot. Applied motion planning and obstacle avoidance strategies.

• formula 1 students' competition:

Feb 2024

Contributed as a key member of the control team, utilizing expertise in Stanley control and MPC algorithms to autonomously navigate the vehicle along a real-time generated path.

• Head of Software Team at SkyXpert, leading our team's participation in The ICMTC competition this year.

Feb 2024

SKILLS SUMMARY

Languages: C, CPP, Python, SQL, JavaScript.

Frameworks: Pytorch, Tensorflow, ROS, MAVROS, MoveIt, OpenCV, NodeJS, ExpressJS, Unity, Flutter, Ardupilot, PX4.

Tools: Rviz, Gazebo, GMapping, SLAM, TurtleBot2/3, Firebase, mission planner, mavProxy.

Platforms: Linux, Web, Windows, Arduino, ARM, AWS, FortiGat.

Methodologies: Machine Learning, Deep Learning, Reinforcement Learning, Computer vision, Image Processing, Data structures, OOP paradigm, Kinematics

PROJECTS HIGHLIGHTS

- **Stop Face Touching Device — Electronics project.** Designed an electronics project that combats face-touching behavior during the Covid-19 pandemic. Overcame technical challenges to create a wearable device that discourages face contact. **2021**
- **Face recognition — ML project** Utilized transfer learning on the VGG16 model for face recognition. Successfully fine-tuned the model and overcame challenges in data preprocessing and model evaluation. **2021**
- **car lane detection — embedded system& IOT project** Developed an embedded system using computer vision and OpenCV to create a miniature prototype car capable of accurately tracking lanes. Addressed challenges in real-time image processing. **2022**
- **autonomous slam navigation using reinforcement learning**, implemented reinforcement learning techniques on a TurtleBot robot for autonomous simultaneous localization and mapping (SLAM) navigation. Overcame complexities in reward shaping and exploration. **2022**
- **Deepfake — Deep Learning Project** Enhanced a deepfake model by incorporating self-supervised key points, occlusion handling, and equivariant key point detection. Achieved improved realism and motion synchronization. **2022**
- **Dilly-Dallier — web programming Project** Created a gaming website, complete with a leaderboard system. Overcame web development challenges and designed an engaging user experience for online gaming. **2022**
- **Joke generator — NLP project** Developed an NLP project that generates jokes using a transformer model (T5). Overcame challenges in training and fine-tuning the model to produce coherent and humorous text. **2023**
- **Nao robot goalkeeper and player — robotics project** Collaborated on a robotics project to design Nao robots capable of playing soccer, including goalkeeping and field play. Addressed challenges in locomotion and coordinated gameplay. **2023**
- **Image-search engine — Computer vision** engine employs traditional features like color, texture, and shapes, alongside deep learning features from Resnet50. Merged these vectors and utilized PCA for dimensionality reduction, enhancing the system's ability to find similar images with precision. **2024**
- **NaoAI-Assistant — cognitive computing** this project leverages the Nao robot, utilizing its SDK and artificial intelligence capabilities to create a personalized assistant. The robot can engage in interactive conversations, recognize speech, answer questions using GPT-3.5 API, generate text-to-speech responses, and even detect facial emotions. **2024**

ACTIVITIES

- **Helping:** Coaching new teams in the RoboCup @Home competition.