

Doha ElHady

Software Engineer

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Education

Master of Engineering in Electrical and Computer Engineering, University of Ottawa - January 2023

Specialization: Artificial intelligence, machine learning, and computer vision.

Bachelor of Science in Electronics and Communications Engineering, Suez Canal University - August 2021

Projects

Machine learning:

Deep Learning-Based Exterior Car Damage Detection System - Master's Graduation Project
- Mentored by Valeo Egypt

- Assembled large datasets for classification and object detection purposes.
- Optimized and trained state-of-the-art algorithms as MobileNet, YOLOv5, and YOLOv8.
- Evaluated and tuned model hyperparameters for better performance.
- Deployed data augmentation and transfer learning.

Machine Learning-based Images Classification for Cifar10 Dataset

- Implemented image feature extraction using OpenCV and Scikit-image.
- Trained and tuned KNN, Support Vector Machine, and Logistic Regression models for image classification.

Machine Learning-based Compiler Provenance

- Pre-processed executable files using Linux command line tools.
- Trained and tuned different state-of-the-art machine learning models using Scikit-learn.
- Deployed ensemble algorithms.
- Built and tuned deep neural network using Keras framework.

Machine Learning-based Data Exfiltration Detection via DNS

- Designed machine learning pipeline optimized for the data of feature engineering.
- Deployed machine learning models such as Logistic Regression, XGBoost, and Decision Tree.
- Performed online learning on data streamed from a Kafka server.

Robotics:

ROS-based Pick and Place Mobile Robot

- Wrote Python code to control TurtleBot3 motion and manipulator.

Nurse Assistant Robot - Bachelor's Graduation Project - Mentored by Delta Square

- Wrote Python code to connect sensors to Raspberry Pi with I2C.
- Built a graphical user interface (GUI) using Python Tkinter library.

One-seater Urban Electric Vehicle HMI System

Underwater ROV Motion System

Publication

Robo-Nurse Healthcare Complete System Using AI, Springer - The 8th International Conference on Advanced Machine Learning and Technologies and Applications (AMLT2022)

Experience

Artificial Intelligence and Robotics Intern - Digital Egypt Builders (DEBI), Ministry of Communications and Information Technology (MCIT) - Feb. 2022 to Jan. 2023 - Internship

- Built advanced machine and deep learning projects using Python with Keras, and Pytorch.
- Developed ROS-based TurtleBot3 projects.

Software Engineer, EV SCU Racing Team - From Jan. 2020 to Nov. 2021 - Volunteering

- Built data acquisition and human-machine interface systems for an urban electric vehicle using C.
- Designed a race watch for driver's health and safety monitoring using C++.

Software Reviewer & Tech Documenter, ROV SCU Racing Team - From April 2020 to July 2020 - Volunteering

- Refactored a 1000 lines code for an underwater vehicle remote control into a 200 lines clean one.
- Reported the vehicle technical design officially to Mate ROV competition.
- Ranked among the top 5 best technical reports between the Egyptian teams.

Certificates

Azure IoT Developer Specialty, Microsoft - May 2022

Azure AI Engineer Associate, Microsoft - April 2022

Training and Courses

- Huawei HCIA AI, Huawei Talent
- Python for Everyone (Data Structures /Access Web Data), University of Michigan, Coursera
- Neural Networks and Deep Learning, DeepLearning.AI, Coursera
- Software Design: Code and Design Smells, LinkedIn
- Embedded Systems Diploma

Technical Skills, Knowledge & Tools

- Programming languages: Python, C/C++.
- Machine learning frameworks: Tensorflow, Keras, Pytorch.
- Pythonic tool stack: NumPy, Pandas, Matplotlib, Seaborn, Scikit-learn, OpenCV, Scikit-image.
- Tools: Google Colab, Jupyter notebooks, Linux command line.
- Knowledge: Image processing, Computer vision, Machine learning, Deep learning, ROS.
- Cloud: Microsoft Azure.
- Technical documentation.

Languages

- Arabic - Native
- English - Fluent

Extracurricular Activities

General Team Lead, SCU Racing Team - From May 2019 to Aug. 2020

- Initiated a technical summer academy that taught 50+ undergraduates.
- Coordinated the board of 3 technical and 5 non-technical teams (120 members).

Vice President of Students' Union, Faculty of Engineering - From Nov. 2017 to June 2018

References

Reda Elhakim, Chief Engineer, Research and Innovation Department, Valeo Egypt.

Contact: reda.elhakim@valeo.com

Relation: Master's graduation Valeo's mentor.

AbdElMoneim Bayoumi, Assistant Professor, Computer Engineering, Cairo University.

Contact: abayoumi@debi.gov.eg

Relation: DEBI's mentor and Head of Track.