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Hadi Elnemr

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A Mechatronics Engineering student, seeking an opportunity to work on Autonomous Vehicles and willing to continue my academic studies and research in this field.

Education

Bachelor Project and Thesis **March — September 2022**
Rheinisch-Westfälische Technische Hochschule (RWTH) Aachen.
Topic: Lane-level Map Matching Algorithm for Model-scale Vehicles
Grade: 1.0 (Equivalent to A, highest grade) (German scale GPA 1.0 - 5.0)

Bachelor of Science in Engineering Materials and Sciences (EMS), Mechatronics major **September 2018 — July 2023**
The German University in Cairo, Current GPA: 0.82 (A+ in German Standard GPA).

Specialization Courses: Classical and Modern Control Engineering, Embedded Systems, Mechatronics Engineering, Pneumatic and Hydraulic Control, Mechanics of Machinery, Engineering Mechanics, Programming, Data Structures and Algorithms, Strength of materials, Thermodynamics, Fluid Mechanics, Industrial Automation, Engineering Design, Digital Logic Design, Digital System Design, Power Electronics, Electric Machines.

Experience

GUCInnovators Research and Innovation member **August 2022—Ongoing**

Research Intern **August—September 2021**
Control and Dynamical Systems Lab — The German University in Cairo

- Developed a web server and a Socket programming channel besides a MAVLink UDP connection to communicate data between a raspberry pi and a PC.

GUCBrain projects member **January 2020—-December 2021**

- A machine learning AWG in the GUC. Did several machine learning tasks and attended tens of ML sessions.

IEEE GUC SB Senior Hardware Committee member **September 2018—-December 2021**

- Practiced Android Development, worked on Arduino, MATLAB, C and ROS tasks.

Junior Teaching Assistant **February 2020—-January 2021**
German University in Cairo — Cairo, Egypt

- Mentored students in the Introduction to Programming and OOP (CSEN 202) course Labs.
- Mentored students in the Data Structures and Algorithms (CSEN 301) course Labs.

Trainee **August, 2020**
Robo-Tech EG — Alexandria, Egypt

- Trained on Robot arm designing, analysing, manufacturing and control.

Intern **July 2019 — September 2019**
International Turnkey Systems (ITS) — Cairo, Egypt

- Worked on a web application project based on ASP.Net MVC framework.

Additional Experience

- **ACM ICPC GUC Community member.** Took pupil's and Specialist's plans.
- **ECPC qualifications contest.** Participated in the GUC qualifications.
- **Catalyst's Coding Contest, Google HashCode and Code Jam Participant.**
- **Nasa Space Apps competition participant.**

Projects

- **Coffee Bean Crusher 3 Piston Cylinder Pneumatic System.**
- **Analysis of a compound mechanism (4-bar and slider crank mechanism).**
- **Self Balancing Robot.** Implemented a self balancing two-wheeled vehicle using Arduino's ATMega328P microcontroller and MPU6050. Part of the Mechatronics Engineering / Embedded Systems course.
- **LZ Data Compression Using VHDL.** Implemented a data compression and decompression VHDL code using Lempel–Ziv algorithm as part of the Digital System Design Course.
- **HearthStone.** Developed a replica of the famous gameplay HearthStone and implemented its GUI where OOP concepts were used throughout the project. Computer Programming Lab (CSEN 401) course project.
- **Six - Position Voting System.** A Digital Logic Design Course project. Implemented a voting system using logic gates and 7 segment display.
- **CSManim.** A personal project based on Manim (Mathematical Animation Library) to demonstrate data structures and algorithms concepts.

Courses

- Introduction to Self-Driving Cars (Coursera)
- Introduction to Data Science in Python (Coursera)
- Data Analysis Challenger Track (Udacity)

Awards & Scholarships

2018 Partial Scholarship at The German University in Cairo. Ranked 98^{th} on Egypt's Thanawya Amma (High School) Mathematica Section.
2019 Ranked 5^{th} on Engineering at the GUC. 1^{st} year.
2020 GUC excellence award. Ranked 2^{nd} on Mechatronics at the GUC. $3rd$ semester.
2021 Ranked 4^{th} on Mechatronics at the GUC. 6^{th} semester.

Languages and Technical Skills

- Python, C, Java, OOP, AVR Microcontrollers, Raspberry Pi, MATLAB, SOLIDWORKS, AutoCAD, MAVLink.
- Familiar with Carla, C++, C#, Assembly, ML, Data Science, OpenCV, Proteus, SQL, Socket Programming, Flask, Django.

Interests

- Autonomous Vehicles
- Robotics and Control
- Machine Learning and Computer Vision
- University Teaching and Research