Mohamed Hussein

Senior Machine Learning Engineer specialized in (Perception and Computer Vision)

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Senior Machine learning engineer with +4 years of experience in both Research and industry. Specialized in computer vision, sensor fusion, and perception using both traditional and deep learning methods. Proficient in building and testing real-time industrial software solutions using python and C++. Experienced in the entire deep learning pipeline, encompassing data labeling, model training, validation, model optimization, dockerizating and deploying scalable models (MLOPS).

PROFESSIONAL EXPERIENCE

Computer Vision Engineer (Perception Team) • **BOSCH**, Romania **May 2023 - Present**

- Conducted research and developed advanced computer vision algorithms for autonomous railway systems.
- Designed and implemented a multi-sensor perception kit using ROS2, tailored for trams and railway networks.
- Developed a robust localization kit for autonomous vehicle applications, enhancing navigation and positioning accuracy.

Computer Vision Engineer (Master Thesis) • **Goodyear**, Luxembourg **Jan 2022 - Aug 2022**

- Advancing Road surface classification for AV (Dry, Wet, Snow, Ice) and Accurate Road Friction Estimation via the Integration of Camera, Tire Sensor Data, and Vehicle Dynamics Information
- Model is tested and deployed successfully during Goodyear beyond tire event 2022.
- The research has been selected to be presented for presentation at the IPCV Conference in PPCU University, Hungary.

Deep Learning Researcher • **Zewail City of Science and Technology**, Egypt **Aug 2019 - Aug 2020**

- Developed a state-of-the-art deep learning model for COVID-19 diagnosis from X-ray and CT scans.
- Created a user-friendly website using JavaScript and TensorFlow.js for hosting and deploying the deep learning model.
- Deployed the model on Google Cloud, demonstrating expertise in MLOps (Machine Learning Operations).
- Actively contributed to the development of an autonomous social robot using ROS (Robot Operating System).

Teaching Assistant (Part Time) • **MUST University**, Egypt **Jan 2020 - April 2020**

- Teaching laboratory sessions for the course "Advanced Mechatronics Topics" focusing on robotics and AI.
- Teaching the fundamentals of academic research methodologies.

Advanced Driver Assistance Systems (Intern) • **Continental AG**, Romania

- Conducted research in sensor fusion, specifically utilizing Kalman filters.
- Collaborated on projects related to Adaptive Cruise Control and Emergency Brake Assist, employing lidar and radar sensors for enhanced vehicle safety and functionality.

EDUCATION

Master of Science in Image Processing And Computer Vision (University of Bordeaux - **France**) **Sep 2020 - Sep 2022**

- Holding an international master between top ranked universities University of Bordeaux (France) and Universidad Autónoma de Madrid (Spain) in **Top 200 universities worldwide. Overall Grade: (4.36/5.0)**

Bachelor of Science in Mechatronics and Robotics Engineering (MUST University - **EGYPT**) **Sep 2013 - Sep 2018**

- **(3.61/4.0) GPA (Excellent)**, ranked the fifth of my class.
- Graduation project: Social intelligence robot, with grade (**Excellent**), ranked the best project in the department.
- Trained and certified from **IBM, Egypt** in Artificial intelligence.
- Help students to learn more about Robotics by Involve In **IEEE** and Wonderbox Student Activities as Robotics Instructor.

ERASMUS+: Mechatronics And Robotics Engineering (LBUS University, **Romania**) **Feb 2017 - July 2017**

- Accomplished with (**4.0/4.0) GPA (Excellent**)

PROJECTS & CONTRIBUTIONS

Computer Vision Engineer (Freelance - TOP RATED) • Upwork **Jan 2022 - May 2023**

- Develop tire tread depth estimation and OCR analysis.

Computer Vision Engineer (Freelance,Remote) • USA **Feb 2023 - May 2023**

- Facial and body animation using generative models and Deep fake for facial replacement.

Certifications & Accomplishments

C++ Nanodegree (Udacity) - Sensor Fusion Engineer Nanodegree (Udacity) - Intel Edge AI Program - IBM Artificial Intelligence analyst - Mastery Award- IBM Artificial Intelligence analyst - Explorer Award. - Winning first place in kaggle competition

SKILLS & TECHNOLOGIES

Python, C++, ROS2, CMake, PyTorch, Lidar, Camera, Sensor fusion, SLAM, MLOPS, FastAPI, Docker, Agile, Autonomous systems, Deep learning, Machine learning, Robotics, computer vision, Image processing, Generative AI, 3D Computer Vision, 3D reconstruction, LLMs, Large Vision Model, LangChain

Teaching

- Create computer vision tutorials on my YouTube channel, focusing on topics related to lidar-camera sensor fusion.

Publication & Conferences

- **Multi-modal Tracking using LiDAR and Visual Signals**
- Speaker at the IPCV Alumni Workshop 2022, presenting a thesis on **Road Friction Coefficient Estimation using a fusion of machine vision, tire data, and vehicle dynamics**.
- Key-Note speaker at IEEE , Presenting **Lidar and camera fusion for autonomous driving**