Mohamed Essam

Junior AI Engineer
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Skills

- **Programming Languages:** Python, C++, SQL, MATLAB
- **Area of Expertise:** Deep Learning, Computer Vision, Reinforcement Learning, Data Preprocessing, Data Manipulation, Data Cleaning, Statistics, Modeling, Autonomous vehicles, Automotive Engineering, Academic Research
- **Programming Frameworks:** TensorFlow, NumPy, Pandas, Matplotlib
- **Languages:** Arabic (Native), English (B2)
- **Soft skills:** Collaboration, Innovation, Problem Solving, Critical Thinking, Technical Writing, Time Management

Projects

- Intelligent Controller for Autonomous Vehicle Steering System with Perception (Graduation Project: A+):
  - Developed a goal-seeking model that learns to navigate roads using **Deep Reinforcement Learning** (DRL) and **Computer Vision** (CV) techniques.
  - The Computer Vision Algorithm was responsible for **detecting** road objects and identifying road surface slipperiness.
  - The DRL Algorithm was tasked with real-time **decision-making** to adaptively steer the vehicle towards the endline.
  - My Role:
    - Designed the environment that interacts with the vehicle (agent).
    - Differentiated between learning algorithms choosing (DDPG) at last and utilizing it to fit our problem.
    - **Tuned** hyperparameters increasing efficiency, generalization and learning speed.
    - **Reduced** training time by 95% (20 times faster) using **Normalization** techniques and tuning hyperparameters.
    - **Achieved** 98% success rate (The rate of the vehicle reaching endline).
    - **Preprocessed Data** for Computer Vision.

Experience

- *Student Researcher*   *(2023 - present)*
  - Conducting research on autonomous vehicles using Deep Reinforcement Learning.
  - Performing **literature reviews** of related papers.
  - Engaging in **technical writing** for research documentation.

Education

Ain Shams University   Cairo, Egypt
Bachelor of science in Automotive Engineering (GPA: 2.14, Graduation project: 4.00)   *(2017 - 2024)*

Certificates

Deeplearning.AI, Coursera   *(2024)*
  - Deep Learning
  - Mathematics for Machine Learning

Stanford University, Coursera   *(2023)*
  - Machine Learning

IBM, Coursera   *(2024)*
  - Exploratory Data Analysis for Machine Learning

Harvard University   *(2023)*
  - Cs50: Introduction to Computer Science
  - Cs50: Introduction to Databases with SQL
  - Cs50: introduction to Programming with Python