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Kafr El-Sheikh,

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EDUCATION

Bachelor of Artificial Intelligence

Aug 2020 - Jun 2024

Kafr El-Sheikh University

GPA : 3.7

Main Courses: Linear Algebra, Statistics & Probability, Data Structures & Algorithms, Machine Learning, Deep Learning, Natural Language Processing, Introduction to Reinforcement Learning and multi agent design, Cognitive Psychology.

PROFESSIONAL EXPERIENCE

NLP R&D Engineering Internship

July 2023 - Dec 2023

SpeedLegal

Remotely, California, USA

- Fine-tuning a pre-trained BERT model for an extractive question answering task on license agreements. The outcome was that the extractive model was able to do average of 20% exact match score and 65% on a set of 16 clauses leading to approximate 15 minutes decrease in contract review by the legal team.
- Working with model Interpretability and Explainability (LIME). This helped in uncovering the details of the model reasoning in saying why it classified certain legal text under certain classes for reliability.
- Building Retrieval Augmented Generation pipelines with LLMs like GPT-4 & LLaMA2 and Embedding Models like BGE large. Thereafter, properly evaluating the information retrieval system using precision@k, recall@k & mean reciprocal rank. This improved the contract review process by iterating and reaching a high recall@6 of 96% for NDA agreements.

TEACHING EXPERIENCE

Teacher Assistant (TA)

Jan 2023 - March 2023

Kafr El-Sheikh University

- Assisting in teaching and preparing reinforcement learning lectures, materials as well as demonstrative lab exercises in the "Introduction to Multi-Agent Systems Design" course for second year students with the main instructor Fatma Nada.
- Teaching basic RL fundamentals including: Multi-Armed bandits, Markov Decision Processes (MDPs), Bellman Equations and optimality & Dynamic programming. (class size: 30 students)

PROJECTS

DominoRL

Oct 2023 - On Going

Thesis Project

- Developing an agent that plays the two-player partially observable MDP blocking game of dominoes using self-play deep reinforcement learning.

Crash PPO Agent

Jan 2023

Research Project

- Implementing, from scratch, a policy gradient algorithm gave me insights and hands on experience on deep reinforcement learning, specifically, Proximal Policy Optimization (PPO) on an agent that plays the retro game Crash Bandicoot: the huge adventure.

- Using Pytorch for creating the actor and critic shared CNN architecture as well as the heads for the actor and the critic.
- Using openAI's gym retro environment. The agent learned to play one level of the game with an average cumulative rewards of 75+.

Project Link on Github: [CrashAgentPPO](#)

AWARDS

2nd Place In Nile University's Undergraduate research forum

October 2020

Nile University

- This was an undergraduate research competition that I got second place in by training an End-To-End facial recognition system using OpenCV for car security surveillance which checks whether the driver is the car owner or not to prevent burglary.

ACTIVITIES & COMMUNITY SERVICE

Algorithms & Data Structures Tutor in (GDSC)

July 2022 - September 2022

Kafr El-Sheikh University's Google Developer Student Club

- I gave teaching sessions with other tutors about Data Structures and Algorithms.

Artificial Intelligence Study Roadmap

August 2022

Kafr El-Sheikh University

- I published an article where I built an organized, well-planned and resourceful academic undergraduate road-map for studying Artificial Intelligence referencing universities that teach this major.
- Specifically built with the nearest MOOCs (Massive Online Open Courses) that have the same content. I listed all the resources and citations. roadmap : [AI Academic Road-map](#)

SKILLS

Programming Python, C, OOP, Git, Pytorch, Linux

Communication Arabic (native), English (Fluent), German (beginner)