DANIELE MOROTTI

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I am always eager to learn new technologies and use them to solve problems and to create new projects. I am passionate about AI and particularly interested in Deep Learning, Natural Language Processing and Computer Vision.

EDUCATION

2021 – 2023
Master's Degree in Artificial Intelligence, University of Bologna
A two-year master's degree in Artificial Intelligence which provides solid competencies in the innovative applications of AI. Graduated with score **110/110 with honors**.

2018 – 2021
Bachelor's Degree in Computer Science, University of Bologna
Graduated with score **108/110**. As a graduation project, I created an anti-counterfeiting system for the fashion industry that could be run on the Ethereum blockchain.

PROJECTS

COUNTERFACTUAL EXPLANATION
April 2023 – June 2023
The project focuses on developing a model that combines Machine Learning and Optimization techniques to generate counterfactual explanations, employing the OMLT and DiCE libraries, specifically on the GSM Arena dataset.

ARGUMENT RETRIEVAL FOR COMPARATIVE QUESTIONS
December 2022 – January 2023
We implemented different models in order to retrieve the most relevant documents, given a list of queries, from a subset of the ClueWeb12 dataset. As second task, we performed stance detection on the most relevant documents.

BLIND IMAGE SEPARATION
July 2022
I created a convolutional network for the *Deep Learning* course which is able to separate 2 overlapped images taken from the MNIST and FASHION MNIST datasets.

WORK EXPERIENCE

Data Reply – Bologna
April 2023 – August 2023
During the internship, I worked on developing my thesis project, which aimed to process custom data of various types (textual and tabular data) to make them usable by LLMs. Throughout this period, I used the OpenAI API and extensively tested numerous open-source language models. Additionally, I conducted fine-tuning experiments and compared their effectiveness with a retrieval augmented generation approach.

LANGUAGES

Italian (native), English (professional).

IT SKILLS

The degree courses involved the use of various languages such as Python, JavaScript, C++, SQL and R. Additionally, numerous libraries and frameworks were employed in the projects and exercises, including NumPy, TensorFlow, Keras, PyTorch, Scikit-learn, jQuery and Bootstrap. Moreover, both Windows 10/11 and several Linux distributions were used as operating systems.