# 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 and Natural Language Processing.

## EDUCATION

*2021 – Present*
**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.

*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.