

# Gabriele Cola

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## About me

As a statistics graduate, I have a deep understanding of statistical theory and methods, as well as experience using statistical software and programming languages. I am particularly interested in **Machine Learning** and have experience working with **Class Imbalance**

## Technical Skills

**Languages** Python, R, SQL  
**Libraries** Keras, PyTorch, Scikit-Learn, Pandas, Numpy, Seaborn, Tidyverse  
**Tools** Git, LaTeX, VS Code, Colab, HuggingFace

## Education

### Università Cattolica del Sacro Cuore

Milan, IT

MSc in Data Analytics

Jan 2022 - Current

- **Thesis:** "A Reinforcement Learning approach to address Class Imbalance in Datasets"
- **Relevant Courses:** Advanced Programming and Deep Learning, Stochastic Process and Optimization for ML, Data Visualization and Text mining, Bayesian Modelling, Computational Statistics

### Università degli studi di Napoli Federico II

Naples, IT

Bsc in Statistics

Sep 2018 - Jul 2021

- **Thesis:** "The Imbalance problem in Classification"
- **Relevant Courses:** Machine Learning, Databases, Time Series, Probability, Inferential Statistics, Graph Theory, Linear Algebra, Operational Research

## Selected Projects

### Blood Cells Cancer analyzed via CNN



PyTorch, Pandas, Scikit Learn, Streamlit, HuggingFace

- Analyzed 3242 images from 89 patients
- Classify 4 types of stages of cancer using **AlexNet** and **VGG16**
- Deploy the models as a **web app**

### Named Entity Recognition for GUM



Keras, PyTorch, Spacy, Scikit Learn

- Analyzed a corpus with more than **62K words**
- Topic modelling using **LDA** and **NMF**
- Adopted **Bi-LSTM** and **BERT** to accomplish the NER task

## Publications

De Giorgio, A., Cola, G., Lihui, W. (2023) Systematic Review of Class Imbalance Problems in Manufacturing. Journal of Manufacturing System, 71, 620–644.

## Languages

**English** Professional working proficiency  
**Italian** Native

## Volunteering

### 081 Stands for Naples

Operation Member

Aug 2023 - Current

- **Presented 081 Stand for Naples' achievements at the Consulate General of Italy in New York**, showcasing the problem-solving skills and global impact of Neapolitan professionals. Collaborated with a distinguished panel and led a team of key contributors.
- **Organized the 081 Innova Challenge at IPE Business School in Naples**, promoting regional development through innovative ideas. Facilitated training for finalists, coordinated a competition for €8K funding, collaborated with experts, and featured an introductory speech by Scalapay's Co-Founder.