

# Francesco Ferrini

PH.D. STUDENT · MACHINE LEARNING

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## Education

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### Ph.D. in Machine Learning and AI

UNIVERSITY OF TRENTO

Trento, Italy

Nov. 2022 - Curr

- Research topics: Graph Neural Networks, Knowledge Graphs, Meta-paths GNN, Graph Representation Learning, Relational Databases

### MSc Research Internship

AALBORG, DENMARK

Aalborg University

May. 2022 - Sep. 2022

- Worked on synthetic graph generation, machine learning on graphs, geometric deep learning, protein data

### MSc in Artificial Intelligence Systems

UNIVERSITY OF TRENTO

Trento, Italy

Oct. 2020 - Oct. 2022

- Final mark: 110 cum laude
- Course topics: Machine Learning, Deep Learning, Computer Vision, Advanced Machine Learning techniques, Natural Language Processing

### BSc in Computer Science

UNIVERSITY OF VERONA

Verona, Italy

Oct. 2016 - Mar. 2020

- Thesis: Robot planning in unknown scenarios with reinforcement learning techniques

## Publications

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### A Simple and Expressive Graph Neural Network Based Method for Structural Link Representation

ICML, GRaM Workshop

VERONICA LACHI, FRANCESCO FERRINI, ANTONIO LONGA, BRUNO LEPRI, ANDREA PASSERINI

2024

### Meta-path Learning for Multi-relational Graph Neural Networks

Learning On Graphs Conference

FRANCESCO FERRINI, ANTONIO LONGA, ANDREA PASSERINI, MANFRED JAEGER

2023

### Energy-Efficient Inference on the Edge Exploiting TinyML Capabilities for UAVs

MDPI

WAMIQ RAZA, ANAS OSMAN, FRANCESCO FERRINI, FRANCESCO DE NATALE

2021

## Talks

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### Oral presentation of "Meta-path Learning for Multi-relational Graph Neural Networks"

Learning On Graphs Conference

TALK LINK

2023

### Heterogeneous Graph Learning. Hands on tutorial held by the Alan Turing Institute

Alan Turing Institute

TALK LINK

2023

## Activities

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### Oxford Machine Learning summer school

Oxford, UK

WEBSITE LINK

2024

- ML summer school in Representation Learning and Generative AI

### Organizer of LOG Meetup Trento

Trento, I

WEBSITE LINK

2023

- Organization of the 4 days 2023 LOG Trento Meetup in Italy

# Projects

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## Meta-path Learning for Multi-relational GNNs

[Github Link](#)

PYTHON, PYG, NETWORKX, DGL

2023

- Successfully executed a node classification project within a knowledge graphs framework, resulting in the publication of findings at the Learning On Graphs Conference (LOG) 2023, through comprehensive comparison with state-of-the-art methodologies.

## Social graphs classification

[Github Link](#)

PYTHON, PYG, NETWORKX

2022

- Conducted a graph classification project involving the generation of graphs from diverse social contexts, leading to their classification using Graph Neural Networks, to achieve comprehensive insights and analysis

## RasaBot

[Github Link](#)

PYTHON, MYSQL, SPACY

2022

- Developed a Rasa X chatbot for an NLP project in a team setting, enabling customer assistance for online e-commerce orders, including account creation, product visualization, and answering general inquiries, resulting in enhanced customer experience and streamlined operations.

## Attribute recognition and Re-identification

[Github Link](#)

PYTHON, PYTORCH, NUMPY, SCIKIT-LEARN

2021

- Created a supervised Neural Network for a computer vision project in a team setting, capable of predicting various attributes in new images from the Market1501 dataset and accurately identifying individuals across multiple images.