

Andrea Gemelli

PH.D. STUDENT - MACHINE LEARNING SCIENTIST

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Profile

A Computer Science professional with years of experience, holding a MSc degree and actively pursuing a **PhD in Machine Learning**. Strong background in **Document Image Analysis and Recognition**, working with cutting-edge techniques from **Graph Neural Networks**, **Natural Language Processing** and **Computer Vision**. Highly interested and research-oriented towards language and vision and the latest trends on artificial intelligence.

Work Experience

AI Lab - University of Florence

Florence, Italy

Ph.D. Student

Nov 2020 - ongoing

- Focused on the application of Graph Neural Networks to Document Understanding related tasks.
- Worked as a visiting researcher at **Computer Vision Center** for a year, participating to weekly reading groups and meetings with peers.
- Attended several international conferences and summer schools. Among others:
 - **International Computer Vision Summer School (ICVSS)**, selected among 600+ applicants with 30% acceptance rate
 - **Cambridge ELLIS Machine Learning Summer School**, selected among 260+ applicants with 50% acceptance rate
 - **4th IAPR Summer School on Document Analysis**, winning the 2nd price at the organized hackathon.
- Taught two university courses as a student tutor, held several lectures, followed bachelor and master students in their projects and thesis.

Alias2k

Montevarchi, Italy

Data Scientist

Apr 2018 - Sep 2018

- Developed machine learning based solutions to improve the effectiveness of **Alias2k's** digital products.
- Extended their online tool for automatically evaluate the prices of construction machinery rental.
- Final work personally presented to the CEO of Avesco Rent in Lausanne.

Education

University of Florence

Florence, Italy

MSc in Computer Science and Engineering

2017 - 2020

- **Graduated with full marks** (110/110). Thesis: "Structural layout analysis of document images using Graph Convolutional Neural Networks"
- Conducted part of the thesis during an **Erasmus+ Traineeship** at **L3i lab of La Rochelle University**.
- Studied during an **Erasmus+ Study** at **Ghent University**. Held Machine Learning, Software Hacking and Parallel Computing courses.

University of Florence

Florence, Italy

Bachelor in Computer Science and Engineering

2014 - 2017

- Thesis: "Exploiting Convolutional Neural Networks for the detection of walls in floorplan images"
- Held math, programming and IT fundamental and theoretical courses.

Grants and Certifications

Sep 2023	SIGWEB Travel Grant , travel reimbursement for DocEng2023	ACM
Jun 2023	MLOps Certification , Machine Learning Engineering for Production by DeepLearning.AI	Coursera
Feb 2023	IAPR Research Scholarship , awarded by the International Association of Pattern Recognition	IAPR
Feb 2023	IRCDL Student Grant , funded by Associazione Italiana per l'Intelligenza Artificiale	AIIA
Sep 2021	Italian Bar Exam in Information Engineer , with full marks (60/60)	UniFi
Sep 2020	Smart Computing Doctoral Program , winner of the XXXVI cycle call, full funded by University of Florence	UniFi
Nov 2017	English C1 , issued by the linguistic center of University of Florence	C.L.A.

Languages

Italian (C2 - Mother Tongue) - **English** (C1 - Professional Proficiency) - **Spanish** (B1 - Intermediate Level)

Publications

CONFERENCE PROCEEDINGS

Structure Matters: Analyzing Videos Via Graph Neural Networks For Social Media Platform Attribution

Andrea Gemelli, Dasara Shullani, Daniele Baracchi, Simone Marinai, Alessandro Piva

(under review) (2023). 2023

CTE: A Dataset for Contextualized Table Extraction

Andrea Gemelli, Emanuele Vivoli, Simone Marinai

IRCDL23, 2023, Bari, Italy

Deep-Learning for Dysgraphia Detection in Children Handwritings

Andrea, Gemelli, Simone Marinai, Emanuele Vivoli, Tamara Zappaterra

DocEng23, 2023, Limerick, Ireland

Doc2Graph: a Task Agnostic Document Understanding Framework based on Graph Neural Networks

Andrea Gemelli, Sanket Biswas, Enrico Civitelli, Josep Lladós, Simone Marinai

TIE @ ECCV22, 2022, Tel Aviv, Israel

Graph Neural Networks and Representation Embedding for Table Extraction in PDF Documents

Andrea Gemelli, Emanuele Vivoli, Simone Marinai

ICPR22, 2022, Montréal, Québec

Data Augmentation on Graphs for Table Type Classification

Davide Del Bimbo, **Andrea Gemelli**, Simone Marinai

S+SSPR22, 2022, Montréal, Québec

JOURNAL ARTICLES

Datasets and Annotations for Layout Analysis of Scientific Articles

Andrea Gemelli, Simone Marinai, Lorenzo Pisaneschi, Francesco Santoni

(under review) (2023). 2023

Automatic generation of scientific papers for data augmentation in document layout analysis

Lorenzo Pisaneschi, **Andrea Gemelli**, Simone Marinai

Pattern Recognition Letters 167 (2022) pp. 38–44. 2022