

# Enrico Meloni



## Contact

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## Languages

Native Speaker Italian  
English fluency

## Skills

Java, C++, C#,  
Web Technologies,  
Python, PyTorch,  
Docker

## Passions

Computer Vision,  
Software Engineering,  
Distributed Systems,  
Parallel Computation

## Education

2019-2022(exp.)	<b>PhD in Smart Computing</b> Machine Learning and Explainable AI University of Florence	Siena, Italy
2021	<b>4th International School on Deep Learning</b> IRDTA, University of Marche	Las Palmas de Gran Canaria, Spain
2016 - 2019	<b>M.Sc. in Computer Engineering</b> Full Marks and Honor University of Pisa	Pisa, Italy
2017	<b>The Cornell, Maryland, Max Planck Pre-doctoral Research School</b> Max Planck Institute	Saarbrücken, Germany
2013 - 2016	<b>B.Sc. in Computer Engineering</b> Full Marks and Honor University of Pisa	Pisa, Italy

## Publications

2022	<b>Stochastic Coherence Over Attention Trajectory For Continuous Learning In Video Streams</b> <i>31st International Joint Conference on Artificial Intelligence</i>	Co-Author
2021	<b>Messing Up 3D Virtual Environments: Transferable Adversarial 3D Objects</b> <i>20th IEEE International Conference on Machine Learning and Applications</i>	First Author
2021	<b>Evaluating Continual Learning Algorithms by Generating 3D Virtual Environments</b> <i>30th International Joint Conference on Artificial Intelligence</i>	First Author
2020	<b>SAILenv: Learning in Virtual Visual Environments Made Simple</b> <i>25th International Conference on Pattern Recognition</i>	First Author
2020	<b>Learning accurate personal protective equipment detection from virtual worlds</b> <i>Multimedia Tools And Application, Springer, 2020</i>	Co-Author
2019	<b>Learning Safety Equipment Detection using Virtual Worlds</b> <i>International Conference on Content-Based Multimedia Indexing 2019</i>	Co-Author

## Research Experience

2021 - Curr.	<b>Optimization and GPU Acceleration for Online Learning</b> <i>PhD Student</i> <ul style="list-style-type: none"><li>• Focus on real-time online learning</li><li>• Optimization of PyTorch code with CUDA low-level APIs (CUDA Graphs, CUDA Streams, etc.)</li><li>• Profilation and analysis of PyTorch code</li></ul>	Siena, Italy
2021 - 2022	<b>Development of GNNs for Brain Control Interfaces</b> <i>ML Researcher</i> <ul style="list-style-type: none"><li>• Study of current SOTA for BCI</li><li>• Design of GNN architecture</li><li>• Benchmarking and evaluation</li></ul>	Siena, Italy
2019 - Curr.	<b>Development of Virtual Environments for Machine Learning</b> <i>PhD Student</i> <ul style="list-style-type: none"><li>• Development of SAILenv, a 3D Virtual Environment for embodied learning agents.</li><li>• Use of Virtual Environments for different tasks such as 3D Adversarial Attacks and semi-supervised Learning Agents.</li></ul>	Siena, Italy
2018 - 2019	<b>Learning Personal Protection Equipment Detection from Virtual Worlds</b> <i>Thesis author, collaboration with CNR Pisa</i> <ul style="list-style-type: none"><li>• Development of Virtual Environment to produce training datasets</li><li>• Generation of training datasets and evaluation</li></ul>	Pisa, Italy

## Work Experience

- 2021-2022 **Internship at BrainControl, LiquidWeb S.r.l.** Siena, Italy  
*ML Researcher*
- Study of current SOTA for BCI
  - Design of GNN architecture
  - Benchmarking and evaluation
- 2018-Curr. **WANRaptor WAN Emulator at East Coast Datacom, Inc** Rockledge, USA  
*Project Manager and Full-Stack Developer*
- The project focused on building an embedded WAN Emulator for network impairments.
  - The project was developed by a three man team. I coordinated the team as a project manager, I developed the backend, designed the production deployment and designed a test plan with the customer.
  - Technologies used: Java, Groovy, Grails, Python, Docker, Ansible, Make

## Personal Projects

All my personal projects and group projects can be found in my personal GitHub page (<https://github.com/enricomeloni>) or in my group GitHub page (<https://github.com/MeloniZippoProjects>).

- 2018 - 2019 **Meme Audiobot for Telegram** Pisa, Italy
- A Telegram inline bot that can be used to search and share popular quotes or sounds in a Telegram message without leaving the chat context.
  - Focus on cloud technologies and CI/CD tools.
  - Technologies: C#, Asp.Net Core, Powershell, Azure CI/CD, Telegram Bot API
- 2018 **Audio Recognition on Android** Pisa, Italy
- An Android App leveraging Audio Fingerprinting to recognize music. The user can record some music with the microphone and the application will respond with the title and artist of the most similar music found in the database.
  - Focus on media processing and distance-based indexing.
  - Technologies: Java, Powershell, Android
- 2018 **Face Recognition on Android** Pisa, Italy
- An Android App leveraging Machine Learning technologies to recognize faces. The user can register new faces through images or videos, and flag that face as authorized or not authorized. The smartphone cam is used as live feed for face detection, and the app will notify if face detected are allowed or not.
  - Focus on DNNs, Machine Learning and transfer learning
  - Technologies: Java, Android, OpenCV
- 2017 **KP-ABE Photo Sharing** Pisa, Italy
- Service for secure image sharing. It leverages KP-ABE cryptography for encryption. It is composed of a client and a server. The client allows the user to upload and download images according to their permissions. The server creates and distributes keys in a transparent and secure way over HTTPS.
  - Focus on cryptography, security, and privacy.
  - Technologies: C#, .NET, XAML, WPF.