

# Luca Barsellotti

PHD STUDENT AT AIMAGELAB

Department of Engineering "Enzo Ferrari", Modena, Italy

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I am a PhD Student at ImageLab (University of Modena and Reggio Emilia) under the supervision of Prof. Rita Cucchiara. My main research interests are Open-Vocabulary and Open-World Segmentation, with a focus on their usage for Vision-Language Robot Navigation.

## Education

### PhD in Information and Communication Technologies

Modena, Italy

AIMAGELAB • UNIVERSITY OF MODENA AND REGGIO EMILIA

Oct. 2022 - Ongoing

- Open-Vocabulary and Open-World Segmentation for Vision-Language Robot Navigation
- Supervised by Prof. Rita Cucchiara
- Scholarship funded by Leonardo

### MS in Artificial Intelligence and Data Engineering

Pisa, Italy

UNIVERSITY OF PISA

Oct. 2019 - Feb. 2022

- Avg. Grade: 29.47/30 • Final Mark: 110/110 cum laude • Equivalent GPA: 4.0/4.0
- Thesis Title: "Design and implementation of a system for passive data acquisition and automatic classification of financial instruments based on Machine Learning algorithms"

### BS in Computer Science Engineering

Pisa, Italy

UNIVERSITY OF PISA

Sep. 2016 - Oct. 2019

- Avg. Grade: 26.92/30 • Final Mark: 110/110 • Equivalent GPA: 3.5/4.0
- Thesis Title: "Reconstruction of a spectrogram using Context-Encoder architectures based on Convolutional Neural Networks"

## Work Experience

### Research Fellow

CNR Area, Pisa, Italy

CNIT PNTLAB • SCUOLA SUPERIORE SANT'ANNA

Jan. 2022 - Oct. 2022

Deep Learning for resource-constrained SmartNICs, network traffic analysis, and autonomous driving drones.

### Machine Learning Intern

Pisa, Italy

ION TRADING

Sep. 2021 - Dec. 2021

Machine Learning and Data Engineering for classification of financial instruments.

## Main Publications

(Full list of publications [here](#))

- D. Caffagni\*, F. Cocchi\*, [L. Barsellotti\\*](#), N. Moratelli\*, S. Sarto\*, L. Baraldi\*, L. Baraldi, M. Cornia, R. Cucchiara  
**The Revolution of Multimodal Large Language Models: A Survey**  
in *Findings of the Association for Computational Linguistics (ACL Findings)*, 2024 ACL Findings 2024  
Bangkok, Thailand
- [L. Barsellotti\\*](#), R. Amoroso\*, M. Cornia, L. Baraldi, R. Cucchiara  
**Training-Free Open-Vocabulary Segmentation with Offline Diffusion-Augmented Prototype Generation**  
in *The IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2024 CVPR 2024  
Seattle, WA
- [L. Barsellotti\\*](#), R. Amoroso\*, L. Baraldi, R. Cucchiara  
**FOSSIL: Free Open-Vocabulary Semantic Segmentation through Synthetic References Retrieval**  
in *The IEEE/CVF Winter Conference on Application of Computer Vision (WACV)*, 2024 WACV 2024  
Waikoloa, HI

## Activities

- **Lecturer** for the "Intensive Master: AI and ML for Smart Factory" on "Deep Neural Network Architectures for Segmentation" (February 2024)
- **Reviewer** for conferences: **BMVC** (2024), **ECCV** (2024), **IROS** (2024), **ICIAP** (2023)
- **Reviewer** for journals: **Pattern Recognition** (2024), **TOMM** (2023), **AI Communications** (2023)
- Attended the **International Computer Vision Summer School (ICVSS)** on July 2024, presenting the paper "Training-Free Open-Vocabulary Segmentation with Offline Diffusion-Augmented Prototype Generation"
- Attended the **ELLIS Summer School on Large-Scale AI** on September 2023, working at the project "Per-Object Distance Estimation: A Quantitative Comparison"
- Attended the **International Summer School on Machine Vision (VISMACH)** on September 2023
- Participant in the **NVIDIA DOCA Hackathon** on March 2022

## Skills

### Programming

- Programming: Python (advanced knowledge), C, C++, Java (basic knowledge)
- Libraries and tools: PyTorch, NumPy, OpenCV, PyCharm, Visual Studio Code

### Language & Writing

- English (Full professional proficiency)
- Italian (Native proficiency)