Lorenzo **Bianchi**

PhD Student in Vision-Language Artificial Intelligence

Via Panoramica 17B, Pescia (PT), 51012, Italy

+39 331 9744874 | bianchi.lorenzo998@gmail.com | lorebianchi98.github.io | lorebianchi98 | lorenzo-bianchi-893bb225a | Lorenzo Bianchi

I am a passionate Ph.D. candidate in Vision-Language Artificial Intelligence at the University of Pisa and an Associate Researcher at ISTI-CNR. My work has been published at top-tier venues such as CVPR (Highlight Poster) and ICCV, and I have received Best Paper Awards at CBMI and IEEE-CH. In 2025, I joined Disney Research | Studios in Zürich as a Research Intern, where I worked on large-scale diffusion models for text-conditioned image generation. My research interests focus on Vision-Language Models, particularly in understanding, improving, and exploiting the representations learned by foundational models such as CLIP and DINO for image–text tasks.

Work Experience

Associate Researcher
Pisa, Italy

CNR (National Research Council of Italy) — *Mar. 2023 – Present*

- Research Associate in deep learning for vision-language tasks at the Artificial Intelligence for Media and Humanities (AIMH) Lab within the Institute of Information Science and Technologies "Alessandro Faedo" (ISTI).
- Focused on studying, enhancing, and exploiting foundational model representations (*CLIP*, *DINO*, etc.) and applying them to a variety of tasks.
- Worked on image-text matching, retrieval, open-vocabulary object detection, open-vocabulary semantic segmentation, and image captioning.
- Collaborated in the Sun XR European project on extended reality and in the ITSERR project, advancing AI applications in Religious Studies.

Research Intern
Zürich, Switzerland

Disney Research | Studios — *May 2025 – Aug. 2025*

- Designed, implemented, and trained large-scale diffusion models for image generation.
- Supervised by Dr. Vinicius C. Azevedo.

Machine Learning Engineer
Pisa, Italy

Wevo S.r.l. — *Apr. 2024 – Jul. 2024*

- Developed a sentiment analysis system for social media posts, implementing deep learning models for automatic content classification.

Education

Ph.D. in Vision-Language Artificial Intelligence
Pisa, Italy

University of Pisa — *Mar. 2023 – Present*

- Research interests: Vision-Language AI, Representation Learning, and Unsupervised Learning.
- Supervisors: Fabrizio Falchi, Dr. Fabio Carrara, Dr. Nicola Messina, Dr. Giuseppe Amato.

M.Sc. in Artificial Intelligence and Data Engineering
Pisa, Italy

University of Pisa — *Sep. 2020 – Feb. 2023*

- Final Mark: **110/110**.
- Thesis Title: "Design and development of cross-modal retrieval techniques based on transformer architectures".

B.Sc. in Computer Engineering
Pisa, Italy

University of Pisa — *Sep. 2017 – Sep. 2020*

- Final Mark: **110/110**.
- Thesis Title: "Dynamics analysis of sports events on online social networks through clusters".

Publications

- Talking to DINO: Bridging Self-Supervised Vision Backbones with Language for Open-Vocabulary Segmentation — *ICCV 2025*
  L. Barsellotti*, **L. Bianchi***, N. Messina, F. Carrara, M. Cornia, L. Baraldi, F. Falchi, R. Cucchiara
  IEEE/CVF International Conference on Computer Vision (ICCV) — *Honolulu, Hawaii*
- ReCoptic: Computer Vision for the Reconstruction of Dismembered Coptic Codices — *IEEE CH 2025*
  L. Bianchi, A. Moreo, F. Falchi, F. Sebastiani, C. Bianchi
  IEEE International Conference on Cyber Humanities (IEEE CH) ***(Best Paper Award)*** — *Florence, Italy*
- The Devil is in the Fine-Grained Details: Evaluating Open-Vocabulary Object Detectors for Fine-Grained Understanding — *CVPR 2024*
  L. Bianchi, F. Carrara, N. Messina, C. Gennaro, F. Falchi
  IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) ***(Highlight Paper)*** — *Seattle, Washington*
- Is CLIP the main roadblock for fine-grained open-world perception? — *CBMI 2024*
  L. Bianchi, F. Carrara, N. Messina, F. Falchi
  International Conference on Content-Based Multimedia Indexing (CBMI) ***(Best Paper Award)*** — *Reykjavík, Iceland*

- One Patch to Caption Them All: A Unified Zero-Shot Captioning Framework *arXiv 2025*
  L. Bianchi*, G. Pacini*, F. Carrara, N. Messina, G. Amato, F. Falchi
  arXiv
- CountingDINO: A Training-free Pipeline for Class-Agnostic Counting using Unsupervised Backbones *arXiv 2025*
  G. Pacini*, **L. Bianchi***, L. Ciampi, N. Messina, G. Amato, F. Falchi
  arXiv

Skills

Programming	Python, C/C++, Java, MATLAB
Deep Learning	Transformers, CNNs, Diffusion Models
DevOps & Environment	Docker, Conda, Slurm, Kubernetes, Spark, Hadoop, Unix/Linux systems, Git
Web Development	HTML, CSS, JavaScript, PHP, Flask, Apache
Libraries & Frameworks	PyTorch, Pytorch Lightning, OpenCV, scikit-learn, NumPy, Pandas, Hugging Face, Ollama, Pydantic
Databases	MySQL, MongoDB, Neo4j
Languages	Italian (mother tongue), English (fluent)

Awards

2025	**Best Paper Award,** ReCoptic: Computer Vision for the Reconstruction of Dismembered Coptic Codices	*IEEE CH*
2024	**Best Paper Award,** Is CLIP the main roadblock for fine-grained open-world perception?	*CBMI*
2024	**Highlight Paper,** The Devil is in the Fine-Grained Details: Evaluating Open-Vocabulary Object Detectors for Fine-Grained Understanding	*CVPR*
2015	**Team Winner,** ZeroRobotics Italian High School Tournament 2015 (Teamleader of TeamOre)	*Turin, Italy*

Activities

Summer Schools

International Computer Vision Summer School *Sicily*

Attendee *July 2024*

- Presented a poster for the paper "The devil is in the fine-grained details: Evaluating open-vocabulary object detectors for fine-grained understanding"

ELLIS Summer School on Large-Scale AI for Research and Industry *Modena*

Attendee *September 2023*

- Developed a project on NeRF, evaluating its robustness in real-world scenarios.

Peer Reviewing

Conferences *2023 - Present*

ICMR (2023, 2025), BMVC (2025)

Hackaton

CTF Competitions *2021-2022*

Member of a CTF Time ranked team (Yupsilon team).

Other Repositories

ViT Patch Probing *2025*

A linear probing pipeline to evaluate the semantic richness of ViT-based backbones (such as CLIP, MAE, DINO, etc.)

Brain Tumor Classification *2022*

Brain tumor detection in MRI using CNNs, ViTs, and ensemble models optimized via genetic algorithms

Cyber Bullying Classification *2022*

BERT-based detection for cyberbullying in tweets

PageRank Implementation *2021*

High-performance PageRank implementation using Spark and Hadoop, two of the most used analytics engines for large-scale data processing

UniMusic *2021*

Scalable music discovery platform with hybrid MongoDB/Neo4j architecture. Handles millions of tracks with real-time recommendation algorithms

Smart Fruit Fridge *2021*

Automation system for managing a smart fruit fridge — deployed with IoT networks using MQTT and CoAP protocols