

Marco Mistretta

Applied Scientist at Amazon
PhD Student in Artificial Intelligence

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Professional Summary

- **Applied Scientist at Amazon Alexa AI** (Turin, Italy), working on LLMs for Alexa
- PhD researcher in **AI** at MICC, University of Florence (Italy), under **Prof. Andrew D. Bagdanov**
- Top conference papers: **NeurIPS 2026 (x2)**, **CVPR 2026**, **ICLR 2026**, **ICLR 2025**, **ECCV 2024**
- Former **Applied Scientist Intern at Amazon Rufus** (London)

Professional Experience

- Jul 2026 **Applied Scientist II, Amazon Alexa AI**, Turin, Italy
- Present ○ Working on cutting-edge LLMs to make Alexa smarter for millions of users worldwide.
- Jul 2025 **Applied Scientist Intern, Amazon Rufus Team**, London, UK
- Dec 2025 ○ Fine-tuned, evaluated, and deployed MLLMs impacting millions of customers.

Education

- 2023–Present **PhD in Artificial Intelligence**, *University of Florence, Italy*
Multimodal Vision-Language Models, Incremental & Prompt Learning
Supervisors: A. D. Bagdanov, M. Bertini
- 2021–2023 **MSc in Artificial Intelligence**, *University of Florence, Italy*
Thesis: *RE-Tune — Incremental Fine-Tuning of Biomedical VLMs*, Grade: 110/110L
- 2018–2021 **BSc in Computer Engineering**, *University of Florence, Italy*
Thesis: *AI-driven Scarlatti Sonatas Generation*, Grade: 105/110

Selected Publications

- “WASP: Weakly Aligned Spatiotemporal Pairs for Fetal Brain MRI-Ultrasound Learning.” (**NeurIPS 2026**)
Correnti F., Magrini G., **Mistretta M.**, Biondi N., Pala P., Ramalli A., Fiori S., Bagdanov A. D., Lenge M.
Builds MRI-ultrasound pairs from unpaired fetal cohorts via optimal transport on clinical metadata. [project]
- “GeoBiaset: A Counterfactual Benchmark for Demographic Bias in World-Level Geolocalization.” (**NeurIPS 2026, E&D Track**)
Niccoli N., Dani S., **Mistretta M.**, Bagdanov A. D., Bertini M., Seidenari L.
Counterfactual benchmark measuring demographic bias in world-level image geolocalization.
- “IsoCLIP: Decomposing CLIP Projectors for Efficient Intra-modal Alignment.” (**CVPR 2026**)
Magistri S., Goswami D., **Mistretta M.**, Twardowski B., van de Weijer J., Bagdanov A. D.
Reveals how CLIP projectors induce inter-/intra- modal operators causing intra-modal misalignment. [code] [paper]
- “SpectralGCD: Spectral Concept Selection and Cross-modal Representation Learning for Generalized Category Discovery.” (**ICLR 2026**)
Caselli L., **Mistretta M.**, Magistri S., Bagdanov A. D.
Multimodal approach for GCD via CLIP-based spectral concept selection. [code] [paper]
- “Cross the Gap: Exposing the Intra-modal Misalignment in CLIP via Modality Inversion.” (**ICLR 2025**)
Mistretta M.*, Baldrati A.*, Agnolucci L.*, Bertini M., Bagdanov A. D.
Exposes intra-modal misalignment in CLIP via a modality inversion based analysis. [code] [paper]
- “Improving Zero-shot Generalization of Learned Prompts via Unsupervised Knowledge Distillation.” (**ECCV 2024**)
Mistretta M.*, Baldrati A.*, Bertini M., Bagdanov A. D.
Add-on for prompt learning techniques that improves prompt generalization without labels. [code] [paper]

Research Interests

- **Multimodal Learning:** Combining vision and language for richer model understanding.
- **Prompt Learning:** Optimizing prompts to effectively guide AI models for improved task performance.
- **Few-Shot Learning:** Adapting AI to new tasks with limited examples.
- **Incremental Learning:** Enabling models to continuously learn without forgetting previous knowledge.
- **Contrastive Self-Supervised Learning:** Extracting insights from unlabeled data.

Reviewer Roles

- **Conferences:** NeurIPS 2024, ICLR 2025, NeurIPS 2025, CVPR 2026
- **Journal:** IEEE Transactions on Multimedia/Circuits and Systems for Video Technology

Teaching and Mentoring

- Jan 2024 **Teaching Assistant**, *University of Florence*
- Jan 2026 ○ Delivering interactive lessons on C/C++ and Python to over 200 bachelor students.
- Jan 2020 **Student Ambassador**, *University of Florence*
- Nov 2020 ○ Mentoring students on exams projects, internships, and career development.

Technical Skills

Programming Python, Java, C++, MATLAB, R
Frameworks PyTorch, TensorFlow, NumPy, OpenCV
Miscellaneous Git, Docker, Bash

Personal Interests

- Music ○ **Flute Player:** Played transverse flute for 10 years in local bands and orchestras.
- **Chorister** at "Coro Giovanile Effetti Sonori" (National Competition Winner)
- **Guitarist and Songwriter** for "I Green Clouds" (Provincial Competition Winner)
- Gaming Enjoying strategic and cooperative games that enhance problem-solving and teamwork.

Languages

English Professional working proficiency
Italian Native