Roberto **Bigazzi**

Ph.D in Computer Vision and Deep Learning

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Summary

I am a Machine Learning Engineer and Data Scientist in the Vehicle Testing and Development unit at Ferrari SpA. Previously, I was a Postdoctoral Researcher at the University of Modena and Reggio Emilia, where I worked on Computer Vision and Deep Learning for Embodied AI. I earned my Ph.D. at AImageLab , under the supervision of Professor Rita Cucchiara, and completed my Master's degree at the Polytechnic University of Milan. During my studies, I was also a Visiting Student Researcher at Stanford University's Autonomous Systems Lab, working with Professor Marco Pavone.

Experience

Machine Learning Engineer and Data Scientist @ **Ferrari SpA** — *Maranello, Modena, Italy*
Developed learning-based models to optimize vehicle testing workflows, reducing test cycle time and improving data efficiency. — *Mar. 2023 - present*

Postdoctoral Research Fellow @ **AImageLab - University of Modena and Reggio Emilia** — *Modena, Italy*
Computer Vision and Deep Learning Research: Visual Navigation and Multimodal Learning for Embodied Agents — *Mar. 2023 - present*

Research Fellow @ **AImageLab - University of Modena and Reggio Emilia** — *Modena, Italy*
Research on Embodied AI during Doctorate at AImageLab — *Nov. 2019 - Mar. 2023*

Research Fellow @ **ASL - Stanford University** — *Stanford, California, United States*
Research on Visual Navigation at Autonomous Systems Lab — *Jun. 2022 - Aug. 2022*

Lecturer @ **Nuova Didactica, Prometeia SpA, and IFOA** — *Modena / Bologna, Italy*
"Deep Learning Application" course — *Jan. 2021 - Apr. 2024*

Education

Ph.D. @ **University of Modena and Reggio Emilia** — *Modena, Italy*
Doctorate in Information and Communication Technologies under the supervision of Prof. Rita Cucchiara — *Nov. 2019 - Mar. 2023*

Visiting Student Researcher @ **Stanford University** — *Stanford, California, USA*
Research on Visual Navigation at Autonomous Systems Lab (ASL) under the supervision of Prof. Marco Pavone — *May 2022 - Aug. 2022*

Erasmus+ Student @ **Technische Universität Wien** — *Vienna, Austria*
Erasmus+ Exchange Semester — *Oct. 2018 - Feb. 2019*

B.S. and ***M.S.*** @ **Polytechnic University of Milan** — *Milan, Italy*
Bachelor of Science and Master of Science in Computer Science and Engineering (Thesis with Prof. Marco Gribaudo) — *Sep. 2014 - Oct. 2019*

Knowledge and Technical Skills

Topics Deep Learning, Multimodal Learning, Reinforcement Learning, Natural Language Processing, and LLMs, Visual Navigation
Programming Languages Python, Java, Javascript, C++, C#, C, MATLAB, SQL, Microcontroller Programming (Arduino)
Italian (Mothertongue), English (Proficient *TOEIC (C1), FCE (B2)*)

Main Pubblications

2024 Advances in Neural Information Processing Systems (NeurIPS)
Personalized Instance-based Navigation Toward User-Specific Objects in Realistic Environments

2024 IEEE International Conference on Robotics and Automation (ICRA) (Collaboration with Stanford University and Georgia Tech)
Mapping High-level Semantic Regions in Indoor Environments without Object Recognition

2024 IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPRW)
AIGeN: An Adversarial Approach for Instruction Generation in Vision-and-Language Navigation

2023 IEEE International Conference on Robotics and Automation (ICRA)
Embodied Agents for Efficient Exploration and Smart Scene Description

2022 IEEE Robotics and Automation Letters (RA-L) + IEEE International Conference on Robotics and Automation (ICRA)
Focus on Impact: Indoor Exploration with Intrinsic Motivation

2020 25th IAPR International Conference on Pattern Recognition (ICPR) (Oral Presentation)
Explore and Explain: Self-supervised Navigation and Recounting

Program Committees

Outstanding Reviewer Award: CVPR 2025, ECCV 2024
Peer Reviewer: *Conferences* - CVPR, NeurIPS, ICCV, ECCV, ICRA, IROS, WACV, ICPR, ACMMM, ICIAP | *Journals* - RA-L, GRSL, PRL, TOMM
Evaluator: ELLIS Ph.D. Program

Teaching Activities

Teaching Assistant: "Computer Architectures", "AI for Automotive", and "Computer Vision and Cognitive Systems" courses.
Assistant Supervisor: 3x Student Theses on Deep Learning and Computer Vision.