Roberto **Bigazzi**

Ph.D in Computer Vision and Deep Learning

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Summary

I am a machine learning engineer and data scientist at Ferrari. I was a postdoctoral researcher at the University of Modena and Reggio Emilia, working on Computer Vision and Deep Learning for Embodied AI. I completed my Ph.D. at AImageLab supervised by Professor Rita Cucchiara. During my Master's, I studied at the Polytechnic University of Milan. I also spent a period as a visiting student researcher at Stanford University's Autonomous Systems Lab under Professor Marco Pavone.

Knowledge and Technical Skills

Topics Visual Navigation, Multimodal Learning, Natural Language Processing, Reinforcement Learning, Deep Learning

Programming Python, Java, Javascript, C++, C#, C, MATLAB, SQL, Microcontroller Programming (Arduino)

Languages Italian (Mothertongue), English (Proficient *TOEIC (C1), FCE (B2)*)

Experience

***Machine Learning Engineer and Data Scientist* @ Ferrari SpA** — *Maranello, Modena, Italy*
Learning-based Approaches for Automotive Research and Development — *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, 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*

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

2023 22st International Conference on Image Analysis and Processing (ICIAP) (Honorable Mention for ICIAP Best Paper Award)
Towards Explainable Embodied Navigation and Recounting

Program Committees

Outstanding Reviewer Award: ECCV 2024. **Evaluator,** ELLIS Ph.D. Program.

Peer Reviewer: *Conferences* - CVPR, ICCV, ECCV, ICRA, IROS, WACV, ICPR, ACMMM, ICIAP; *Journals* - RA-L, GRSL, PRL, TOMM.

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.