

Roberto Bigazzi

Ph.D in Computer Vision and Deep Learning

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Summary

I'm a Post-Doc Researcher at the University of Modena and Reggio Emilia, in the AlmageLab research laboratory supervised by the Professor Rita Cucchiara. The main topics of my research are Computer Vision and Deep Learning, in particular on robotic visual navigation. I pursued my Ph.D. at AlmageLab research laboratory after completing my Master's Degree in Computer Science and Engineering at the Polytechnic University of Milan, with the Professor Marco Gribaudo. During my Ph.D. program, I spent a period as visiting student researcher at Stanford University in the Autonomous Systems Lab (ASL) directed by the Professor Marco Pavone.

Knowledge and Technical Skills

Domains	Visual Navigation, Multimodal Learning, Natural Language Processing, Reinforcement Learning, Deep Learning
Programming	Python, Java, Javascript, C++, C#, C, MATLAB, SQL, Microcontroller Programming (Arduino)
Frameworks and Other Languages	PyTorch, OpenCV, Numpy, Pandas, LaTeX, Scikit-learn, Tensorflow, Keras, ROS, Git, Android Programming, MySQL Italian (Mother tongue), English (Proficient <i>TOEIC (C1)</i> , <i>FCE (B2)</i>)

Education

University of Modena and Reggio Emilia

POST-DOC RESEARCHER: COMPUTER VISION AND DEEP LEARNING

- Research on Visual Navigation and Multimodal Learning

Modena, Italy

Mar. 2023 - present

University of Modena and Reggio Emilia

DOCTOR OF PHILOSOPHY IN INFORMATION AND COMMUNICATION TECHNOLOGIES: COMPUTER VISION AND DEEP LEARNING

- Multimedia Data Learning at Almagelab under the supervision of Prof. Rita Cucchiara

Modena, Italy

Nov. 2019 - Mar. 2023

Stanford University

VISITING STUDENT RESEARCHER

- Research on Visual Navigation at Autonomous Systems Lab (ASL) under the supervision of Prof. Marco Pavone

Stanford, California, United States

May 2022 - Aug. 2022

Polytechnic University of Milan

MASTER OF SCIENCE IN COMPUTER SCIENCE AND ENGINEERING

- Final Grade: 108/110. Thesis with Prof. Marco Gribaudo: "Enhancing Spatial Navigation in Robot-Assisted Surgery: a case study"

Milan, Italy

Sep. 2017 - Oct. 2019

Technische Universität Wien

ERASMUS+ EXCHANGE SEMESTER

Vienna, Austria

Oct. 2018 - Feb. 2019

Polytechnic University of Milan

BACHELOR OF SCIENCE IN SOFTWARE ENGINEERING

- Final Grade: 99/110

Milan, Italy

Sep. 2014 - Sep. 2017

Pubblications

2023 INTERNATIONAL CONFERENCE ON ROBOTICS AND AUTOMATION (ICRA)

Embodied Agents for Efficient Exploration and Smart Scene Description

Roberto Bigazzi, Silvia Cascianelli, Lorenzo Baraldi, Marcella Cornia, Rita Cucchiara

2022 ROBOTICS AND AUTOMATION LETTERS (RA-L) + INTERNATIONAL CONFERENCE ON ROBOTICS AND AUTOMATION (ICRA)

Focus on Impact: Indoor Exploration with Intrinsic Motivation

Roberto Bigazzi, Federico Landi, Silvia Cascianelli, Lorenzo Baraldi, Marcella Cornia, Rita Cucchiara

2022 26TH INTERNATIONAL CONFERENCE ON PATTERN RECOGNITION (ICPR)

Spot the Difference: A Novel Task for Embodied Agents in Changing Environments

Federico Landi, Roberto Bigazzi, Marcella Cornia, Silvia Cascianelli, Lorenzo Baraldi, Rita Cucchiara

2023 22ST INTERNATIONAL CONFERENCE ON IMAGE ANALYSIS AND PROCESSING (ICIAP)

Towards Explainable Embodied Navigation and Recounting

Samuele Poppi, Roberto Bigazzi, Niyati Rawal, Marcella Cornia, Silvia Cascianelli, Lorenzo Baraldi, Rita Cucchiara

Embodied Navigation at the Art Gallery

Roberto Bigazzi, Federico Landi, Silvia Cascianelli, Marcella Cornia, Lorenzo Baraldi, Rita Cucchiara

Out of the Box: Embodied Navigation in the Real World

Roberto Bigazzi, Federico Landi, Marcella Cornia, Silvia Cascianelli, Lorenzo Baraldi, Rita Cucchiara

Explore and Explain: Self-supervised Navigation and Recounting

Roberto Bigazzi, Federico Landi, Marcella Cornia, Silvia Cascianelli, Lorenzo Baraldi, Rita Cucchiara

UNDER REVIEW

Indoor Semantic Region Mapping: Language-grounded Visual Recognition for Embodied Navigation

Roberto Bigazzi, Shreyas Kousik, Lorenzo Baraldi, Rita Cucchiara, Marco Pavone

UNDER REVIEW

AIGeN: An Adversarial Approach for Instruction Generation in Vision-and-Language Navigation

Niyati Rawal, Roberto Bigazzi, Lorenzo Baraldi, Rita Cucchiara

UNDER REVIEW

UNMuTe: Unifying Navigation and Multimodal Dialogue-like Text Generation

Niyati Rawal, Roberto Bigazzi, Lorenzo Baraldi, Rita Cucchiara

Experience

AlmageLab - University of Modena and Reggio Emilia

RESEARCH FELLOW

Research during Doctorate at AlmageLab.

Modena, Italy

Nov. 2019 - present

Prometeia

LECTURER

Python and Machine Learning course for Banco BPM

Bologna, Italy

Nov. 2021

IFOA Modena / Bologna

LECTURER

“Deep Learning, Artificial Intelligence e Neurolinguistic Processing” and “Data Analysis and Data Visualization” courses.

Modena / Bologna, Italy

Jan. 2021 - Apr. 2021

Cyber-Physical Systems Group - Technische Universität Wien

PROJECT DEVELOPER

Project performed on the creation of a vertical farming system during the course of Internet of Things of the Professor Ezio Bartocci at TU Wien.

Vienna, Austria

Oct. 2018 - Jan. 2019

Teaching Activities

2020-23 **Teaching Assistant**, Computer Architectures

2021-22 **Lecturer and Project Tutor**, AI for Automotive

2020-21 **Project Tutor**, Neural Network Computing, AI and Machine Learning for Automotive

2019-20 **Project Tutor**, Computer Vision and Cognitive Systems

Program Committees

Peer Reviewer, IEEE Robotics and Automation Letters (RA-L)

Peer Reviewer, IEEE Geoscience and Remote Sensing Letters (GRSL)

Peer Reviewer, IEEE Pattern Recognition Letters (PRL)

Peer Reviewer, Transactions on Multimedia Computing Communications and Applications (TOMM)

Peer Reviewer, IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)

Peer Reviewer, IEEE International Conference on Robotics and Automation (ICRA)

Peer Reviewer, IAPR International Conference on Pattern Recognition (ICPR)

Peer Reviewer, ACM International Conference on Multimedia

According to law 679/2016 of the Regulation of the European Parliament of 27th April 2016, I hereby express my consent to process and use my data provided in this document and application for recruiting purposes.