

Albin Bajrami, Postdoctoral Researcher in Robotics and AI

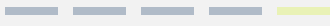
✉ albin.bajrami@iit.it 📞 +39 347 642 5852

📍 Genova, Italy (Available for worldwide travel)

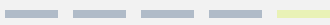
🌐 [Linkedin](#) 🐙 [GitHub](#) 🔄 [loop](#) [IIT Profile](#) [Online CV](#)

Robotics&AI Skills

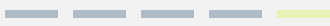
Python/C++ - ROS1/2



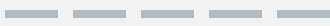
Nvidia Isaac Lab/Sim



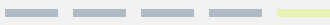
Matlab



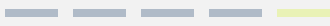
Linux



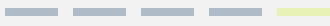
FANUC - TIAGo - Franka - UR



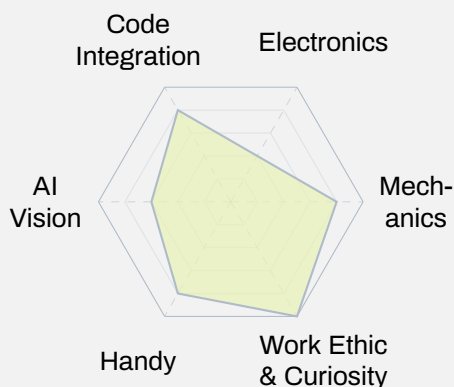
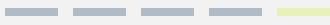
CAN - Arduino - Control Boards



CAD - 3D Printing

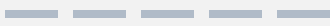


GitHub

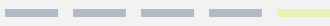


Languages

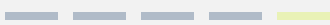
🇮🇹 Italian



🇬🇧 English



🇦🇱 Albanian



Major Research Projects

Led and primarily advanced as main contributor



Developed AI-driven robotic surface finishing, applying reinforcement learning in NVIDIA Isaac Lab to optimize polishing processes, and integrating multi-source Learning by Demonstration to streamline robot programming.



Conducted research in rehabilitation robotics, developing real-time human gesture imitation through RGB-based triangulation using NVIDIA DeepStream, a high-performance framework for video analytics.

All projects are developed in Python with ROS 1 & 2 on Ubuntu Linux 16.04 to 22.04.

Work and Research Experience

Postdoctoral Researcher - Industrial Robotics Facility

Present

Italian Institute of Technology (IIT)

InBot

Contributed to high-impact robotics programs including ULS (Universal Locomotion System) for autonomous lunar-rover mobility and ROSAIA for AI-enabled, impact-tolerant in-orbit servicing; advanced robot control through reinforcement learning.

International PhD - Robotics and Intelligent Machines [DRIM]

Nov 2022 - 1st Nov 2025

Università degli studi di Genova

PhD Program of National Interest; Università consorziata:

Università Politecnica delle Marche

Developed reinforcement-learning methods for advanced robot control, including RL-augmented operational-space control and NVIDIA Isaac Lab policies for adaptive manipulation. Collaborated on-site with VTT (Technical Research Centre of Finland) on RL for Industry 4.0, and with CNR (National Research Council of Italy) on real-time human gesture imitation for rehabilitation robotics. Also contributed to industrial applications and supported teaching and student tutoring activities

Reliability Engineer

Mar 2022 - Nov 2022

Tecram

Drove data-backed reliability studies with ReliaSoft's Weibull++, BlockSim and RCM++ suites, then rallied cross-functional teams and overhauled internal web platforms to turn findings into faster, smarter engineering decisions.

Education

MSc in Mechanical Engineering

2019–2022

110/110 cum laude

Università Politecnica delle Marche

Focused on advanced mechanical and mechatronic system design, simulation, and prototyping. Gained practical experience through team projects and

Publications

I've had the opportunity to work across multiple robotics and AI areas, from industrial robotics to advanced RL-based robotics and rehabilitation robotics, producing several scientific works on different research topics.

1. Static Performance Analysis of the TIAGo Social Robot for Upper Limb Rehabilitation

Conference

ASME IDETC/CIE 2025 (Volume 5: MESA; Mechanisms & Robotics Conf.) - August 2025
A. Bajrami, M.C. Palpacelli, F. Neri, M. Callegari
<https://doi.org/10.1115/DETC2025-164141>

2. Real-Time Mimicry of Human Arm Gestures on a Single-Arm TIAGo Robot Using RGB-Based Triangulation, AI Pose Detection, and NVIDIA DeepStream

Conference

ASME IDETC/CIE 2025 (Volume 5: MESA; Mechanisms & Robotics Conf.) - August 2025
A. Bajrami, G. Beraldo, D. Costa, M.C. Palpacelli, G. Cortellessa
<https://doi.org/10.1115/DETC2025-168757>

3. Introducing a Socially Interacting Robot in Clinical Rehabilitation Practice

Conference

IEEE International Conference on Robot and Human Interactive Communication (RO-MAN 2025) - 2025
G. Beraldo, A. Bajrami, N. Baldini, M. Capecci, M.G. Ceravolo, M.C. Palpacelli, A. Umbrico, G. Cortellessa
<https://doi.org/10.1109/RO-MAN63969.2025.11217793>

4. Markerless Upper Limb Motion Tracking: A Comparative Evaluation of Multi-View Approaches

Conference

IEEE International Conference on Metrology for eXtended Reality, AI & Neural Engineering (MetroXRaine 2025) - 2025
A. Bajrami, G. Beraldo, M.C. Palpacelli, T. Heikkilä, G. Cortellessa
<https://doi.org/10.1109/MetroXRaine66377.2025.11340428>

5. PCA Fingerprint for RL-Augmented Operational-Space Control

Workshop

IROS 2025 Workshop — Contact & Impact-Aware Manipulation - October 2025
A. Bajrami, M. Suomalainen, T. Heikkilä, M.C. Palpacelli
<https://openreview.net/forum?id=M2g5GhwTk1>

6. Integration of Commercial Wearable Sensors and Social Robots into an Edge-Fog-Cloud Architecture to Support Rehabilitation Practice

Conference

Ambient Assisted Living, FortAAL 2024 (Lecture Notes in Bioengineering) - December 2024
M. Capecci, E. Andrenelli, A. Bajrami, G. Beraldo, M.G. Ceravolo, F. Crudele, et al.
https://link.springer.com/chapter/10.1007/978-3-031-77318-1_17

7. AI-Enabled Framework for Augmenting Upper Limb Rehabilitation With a Social Robot

Conference

IEEE/ASME MESA 2024 - September 2024
G. Beraldo, A. Bajrami, A. Umbrico, G. Cortellessa, M. Palpacelli
<https://ieeexplore.ieee.org/document/10704845>

8. A Comparative Analysis on a Limited Image Dataset for Accurately Detecting Improperly Polished Surfaces for Industrial Applications

Conference

IEEE/ASME MESA 2024 - September 2024
A. Bajrami, M.C. Palpacelli, G. Lettera, S. Pantanetti
<https://ieeexplore.ieee.org/document/10704894>

9. Collaborative Robots in Industrial Manufacturing: A Case Study of Tolerated Assembly

IEEE/ASME MESA 2024 - September 2024

F. Emiliani, D. Costa, G. Palmieri, D. Polucci, A. Bajrami, C. Leoni

<https://doi.org/10.1109/MESA61532.2024.10704905>

Conference

10. From Single to Dual-Arm Collaborative Robotic Assembly: A Case Study at i-Labs

IEEE/ASME MESA 2024 - September 2024

S. Pantanetti, F. Emiliani, D. Costa, G. Palmieri, A. Bajrami

<https://doi.org/10.1109/MESA61532.2024.10704820>

Conference

11. Dynamic Safety Evaluation and Risk Mitigation Strategies for Collaborative Kitting

"New Trends in Mechanism & Machine Science" (EuCoMeS 2024, Springer MMS vol.165) - August 2024

G. Lettera, A. Bajrami, D. Costa, M. Callegari

https://doi.org/10.1007/978-3-031-67295-8_32

Conference

12. Design and Prototyping of a Collaborative Station for Machine Parts Assembly

Machines 12 (8) 572 - August 2024

F. Emiliani, A. Bajrami, D. Costa, G. Palmieri, D. Polucci, C. Leoni, M. Callegari

<https://doi.org/10.3390/machines12080572>

Journal

13. From Dataset Creation to Defect Detection: A Proposed Procedure for a Custom CNN Approach for Polishing Applications on Low-Performance PCs

Machines 12 (7): 453 - July 2024

A. Bajrami, M.C. Palpacelli

<https://doi.org/10.3390/machines12070453>

Journal

14. Investigating Collaborative Robotic Assembly: A Case Study of the FANUC CRX-10 iA/L in Industrial Automation at i-Labs

Eng 5 (2): 29 - March 2024

A. Bajrami, D. Costa, M.C. Palpacelli, F. Emiliani

<https://doi.org/10.3390/eng5020029>

Journal

15. Posture Optimization of the TIAGo Highly-Redundant Robot for Grasping Operation

Robotics 13 (4): 56 - March 2024

A. Bajrami, M.C. Palpacelli, L. Carbonari, D. Costa

<https://doi.org/10.3390/robotics13040056>

Journal

16. From Traditional Automation to Collaborative Robotics in Fine Robotic Assembly: A Case Study at i-Labs

I-RIM 3D Conference 2023 - October 2023

A. Bajrami, D. Costa, M.C. Palpacelli

<https://doi.org/10.5281/zenodo.10722590>

Conference

17. A Flexible Framework for Robotic Post-Processing of 3D Printed Components

ASME IDETC/CIE 2023 - August 2023

A. Bajrami, M.C. Palpacelli

<https://doi.org/10.1115/DETC2023-109746>

Conference

18. A Proposal for a Simplified Systematic Procedure for the Selection of Electric Motors for Land Vehicles with an Emphasis on Fuel Economy

Machines 11 (4): 420 - March 2023

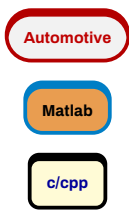
A. Bajrami, M.C. Palpacelli

<https://doi.org/10.3390/machines11040420>

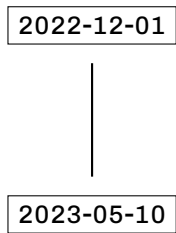
Journal

Projects

1 – e-MOBOTS Project

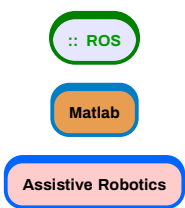


The e-MOBOTS project aims to develop autonomous and sustainable electric mobility solutions through AGVs (Automated Guided Vehicles) and shuttles (electrically powered minibuses), to optimize industrial logistics and productivity.

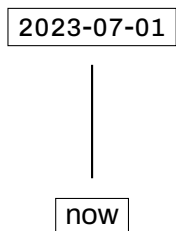


*In this project, I contributed by analyzing the autonomy of the electric vehicle through the creation of a specific calculation algorithm for the case. These analyses are fundamental for the strategic choice of the vehicle's preliminary design (chassis, battery packs, etc).
In addition, a preliminary functional and mechanical design was carried out on the vehicle's transmission.
Also, an algorithm for generating speed profiles via Google Maps was developed in C.*

2 – FOCAAL (FOG Computing in Ambient Assisted Living)

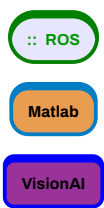


FOCAAL is a project that uses artificial intelligence, robotics, home automation, and biomedical sensing to improve care for the elderly and chronically ill.

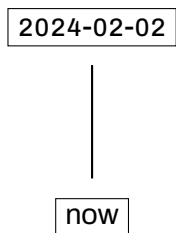


Study and report on the state of the art of the types of robots and assistance systems that are currently available on the market. Development and Analysis of the Kinematics of the Tiago Arm using Matlab. Support for doctors and care givers in the use of the robot in the rehabilitation hospital setting.

3 – DYNAMIC Assessment and Mitigation of the Impact of Collaborative Applications



The DYNAMICA project, coordinated by University of Padua, collaborates with the Polytechnic University of Marche and the University of Pavia. It aims to enhance the use of collaborative robots (cobots) in SMEs, addressing safety, ease of teaching new tasks, and evaluating the impact on production and human energy expenditure.



Focusing on enhancing collaborative kitting in SMEs, my role in DYNAMICA involves developing safety evaluation and risk mitigation tools. We're crafting a ROS2 framework for dynamic, safe co-kitting interactions, aiming for safer, more efficient human-robot collaboration.