Kevin Galassi, PhD

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Experience

CEO & CO-Founder *Bologna, Italy*
ROBOSECT srl *Jul 2024 –*

- Design of a dual-robotic platform for electrical control panel quality control.
- Deploy of machine learning algorithms for CV applications on GPU and Nvidia jetson.
- Management of funding activities, projects proposal and business development.

Postdoctoral Researcher @ INTELLIMAN *Bologna, Italy*
University of Bologna *Jul 2024 – ongoing*

- Simulation of a novel gripper for food bin-picking.
- Development of Def.objects perception.

PhD in Artificial Intelligence for 4.0 Industry *Bologna/Torino, Italy*
University of Bologna & Polytechnic of Turing *Nov 2021 – Nov2024*

- *"Robotic Learning for Perception and Manipulation of Deformable Objects.*
- Perception algorithms for deformable linear objects (DLOs) and wiring harnesses.
- Use of LLM and foundations models for robotics.
- Co-supervisor of >10 Master Thesis on various robotics topics
- Publication of >15 articles (8 journals).
- Tutor of "Autonomous and Mobile Robotics" (2020 – Present) and additional tutoring and lecturing..

Research Intership *Grenoble, France*
Naver Labs Europe *Mar 2023 – Sep. 2023*

- Development of a Nvidia IsaacSim-based simulation for cloth-like objects
- Use of attention model for Imitation learning for a robotic cloth-smoothing task

Visiting PhD student *Munich, Germany*
Technical University of Munich (TUM) *Oct. 2022*

- Testing simulating environment for Deformable linear objects manipulation.
- Application of Reinforcement Learning (SB3) for DLOs manipulation.

Research Assistant @ REMODEL *Bologna, Italy*
University of Bologna *Oct 2021 – Oct 2022*

- Machine learning perception of deformable linear objects
- Robotic platform for electrical control panel manufacturing

Education

BSc & MSc in Automation Engineering *Bologna, Italy*
University of Bologna *Oct 2015 – Oct 2020*

- MSc Thesis: "Motion and trajectory planning for a robotic manipulation of deformable electrical wires" [110/110 cum laude]
- UNIBO FSAE Team: Member of the Electronics Team (2018,2019), co-development of control various ETC, LCS, TCS

Certification, Skills, Interests

Certification: English IELTS C1

Programming: Python, C++, **Frameworks:** ROS1/2, PyTorch, **Simulation**: PyBullet, IsaacSim, Omniverse **Tools:** SolidWorks, Creo **Soft Skills:** Grant writing, project leadership.

Interests: Swimming, planning to swim across strait of Sicily. (3.3Km)

Teaching

University of Bologna, Italy *2024 – 2025*

- 97971 - Laboratory of Informatics and Automation P-IM

Demetra Formazione *2024 – 2025*

- Module 4 - Characteristic of Energetic Plants

Unitech srl *2024 – 2025*

- STEM Togheter - Robotic Teaching Activities for Middle School

Tutoring

University of Bologna, Italy *2020 – 2021*

- 92996 - MSs Autonomous and Mobile Robotics

University of Bologna, Italy *2021 – 2022*

- 92996 - MSc Autonomous and Mobile Robotics

University of Bologna, Italy *2022 – 2023*

- 92996 - MSs Autonomous and Mobile Robotics
- 97969 - BSc Laboratory of Automatic Control

University of Bologna, Italy *2023 – 2024*

- 92996 - MSs Autonomous and Mobile Robotics
- BN6562 - Technical support activities for all qualifying initial training programs.

University of Bologna, Italy *2024 – 2025*

- 92996 - MSs Autonomous and Mobile Robotics
- 88157 - Instruments and Technologies for Automation
- Welcome and orientation for Master Degree on Automation Engineering

Thesis

Master Thesis

[1] Filippo Manuzzi. "Development of a Deep Neural Network for Vision-Based Quality Control in Nonwoven-Industry Packaging Machines". MSc thesis. 2025.

[2] Mohamed Aboraya. "Robotic Manipulation of Deformable Linear Objects : A Model-Free Control Using Reinforcement Learning Algorithms". MSc thesis. 2024. URL: https://amslaurea.unibo.it/id/eprint/31831/.

[3] Luca Barbieri. "Imitation Learning from Teleoperation-Based Demonstrations using Gaussian Mixture Regression for a dual-arm Robot". MSc thesis. 2023. URL: https://amslaurea.unibo.it/id/eprint/29180/.

[4] Michele Pascucci. "Robotic grasping: State of the art and modular real-world implementation". MSc thesis. 2023. URL: https://amslaurea.unibo.it/id/eprint/27835/.

[5] Alessandro Scaloni. "Development of a robotic application for medical hose manipulation and quality control". MSc thesis. 2023. URL: https://amslaurea.unibo.it/id/eprint/28603/.

[6] Jacopo Maria Gangemi. "Virtualization of Wiring Harness Manipulation Tasks through the PyChrono Simulation Engine". MSc thesis. 2022. URL: https://amslaurea.unibo.it/id/eprint/27386/.

[7] Alex Pasquali. "Robotic Manipulation of DLOs for Wiring Harness Assembly: a Machine Learning Approach". MSc thesis. 2022. URL: https://amslaurea.unibo.it/id/eprint/26751/.

[8] Ruslan Shaiakhmetov. "Development of a robotic system for switchgear cabling". MSc thesis. 2022. URL: https://amslaurea.unibo.it/id/eprint/26661/.

[9] Venkatesh Venkatraman. "Integration of the computer controlled screwdriver for Robotic manufacturing in the ROS environment". MSc thesis. 2022. URL: https://amslaurea.unibo.it/id/eprint/26002/.

[10] Andrea Testa. "Progettazione e sviluppo di un sistema automatico per la manipolazione di oggetti deformabili lineari". MSc thesis. 2021. URL: https://amslaurea.unibo.it/id/eprint/24886/.

Publications

Journal Articles

[11] Alessio Caporali et al. "GNN Topology Representation Learning for Deformable Multi-Linear Objects Dual-Arm Robotic Manipulation". In: *IEEE Transactions on Automation Science and Engineering* 22 (2025), pp. 14738–14751. DOI: 10.1109/TASE.2025.3562231.

[12] Gianluca Laudante et al. "Mechatronic Integration of a Dual-Arm Robotic System for Wiring Harness Manufacturing". In: *IEEE/ASME Transactions on Mechatronics* (2025), pp. 1–12. DOI: 10.1109/TMECH.2025.3536627.

[13] Alessio Caporali, Kevin Galassi, and Gianluca Palli. "DLO Perceiver: Grounding Large Language Model for Deformable Linear Objects Perception". In: *IEEE Robotics and Automation Letters* 9.12 (2024), pp. 11385–11392. DOI: 10.1109/LRA.2024.3491428.

[14] Alessio Caporali et al. "Deformable Linear Objects Manipulation with Online Model Parameters Estimation". In: *IEEE Robotics and Automation Letters* (2024).

[15] Alessio Caporali, Kevin Galassi, and Gianluca Palli. "Deformable linear objects 3D shape estimation and tracking from multiple 2D views". In: *IEEE Robotics and Automation Letters* (2023).

[16] Alessio Caporali et al. "RT-DLO: Real-time deformable linear objects instance segmentation". In: *IEEE Transactions on Industrial Informatics* (2023).

[17] Alessio Caporali et al. "Fastdlo: Fast deformable linear objects instance segmentation". In: *IEEE Robotics and Automation Letters* 7.4 (2022), pp. 9075–9082.

[18] Roberto Meattini et al. "Experimental evaluation of intuitive programming of robot interaction behaviour during kinesthetic teaching using sEMG and cutaneous feedback". In: *IFAC-PapersOnLine* 55.38 (2022), pp. 1–6.

Conference Proceedings

[19] Alessio Caporali et al. "Deformable Objects Perception is Just a Few Clicks Away – Dense Annotations from Sparse Inputs". In: *2024 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*. 2024, pp. 5880–5887. DOI: 10.1109/IROS58592.2024.10802495.

[20] Alessio Caporali et al. "Monocular Estimation of Connector Orientation: Combining Deformable Linear Object Priors and Smooth Angle Classification". In: *2024 IEEE International Conference on Advanced Intelligent Mechatronics (AIM)*. 2024, pp. 799–804. DOI: 10.1109/AIM55361.2024.10637081.

[21] Kevin Galassi et al. "Attention-Based Cloth Manipulation from Model-free Topological Representation". In: *2024 IEEE International Conference on Robotics and Automation (ICRA)*. IEEE. 2024.

[22] Kevin Galassi et al. "Scalable Shared Encoding Architecture for Learning-Based Error Detection in Robotic Wiring Harness Assembly". In: *2024 IEEE International Conference on Advanced Intelligent Mechatronics (AIM)*. 2024, pp. 518–523. DOI: 10.1109/AIM55361.2024.10637054.

[23] Alex Pasquali, Kevin Galassi, and Gianluca Palli. "A Fast Score-Based Method for Robotic Task-Free Point-to-Point Path Learning". In: *2023 IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM)*. IEEE. 2023, pp. 1159–1164.

[24] Kevin Galassi, Alessio Caporali, and Gianluca Palli. "Cable detection and manipulation for dlo-in-hole assembly tasks". In: *2022 IEEE 5th International Conference on Industrial Cyber-Physical Systems (ICPS)*. IEEE. 2022, pp. 01–06.

[25] Alessio Caporali, Kevin Galassi, and Gianluca Palli. "3D DLO shape detection and grasp planning from multiple 2D views". In: *2021 IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM)*. IEEE. 2021, pp. 424–429.

[26] Alessio Caporali et al. "Combining vision and tactile data for cable grasping". In: *2021 IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM)*. IEEE. 2021, pp. 436–441.

[27] Pablo Malvido Fresnillo et al. "Deformable objects grasping and shape detection with tactile fingers and industrial grippers". In: *2021 4th IEEE International Conference on Industrial Cyber-Physical Systems (ICPS)*. IEEE. 2021, pp. 525–530.

[28] Kevin Galassi and Gianluca Palli. “Robotic wires manipulation for switchgear cabling and wiring harness manufacturing”. In: *2021 4th IEEE International Conference on Industrial Cyber-Physical Systems (ICPS)*. IEEE. 2021, pp. 531–536.