



# Luigi Capogrosso

POSTDOCTORAL RESEARCHER AT THE INTERDISCIPLINARY TRANSFORMATION UNIVERSITY OF AUSTRIA (IT:U)

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## Education

### Postdoctoral Researcher

INTERDISCIPLINARY TRANSFORMATION UNIVERSITY OF AUSTRIA (IT:U)

- Within the IT:U Smart Space Sensing and Systems Lab (S<sup>3</sup> Lab).

Linz, Austria

Aug. 2025 - Present

### Ph.D. in Artificial Intelligence (*Cum Laude*)

POLYTECHNIC OF TURIN, IN COLLABORATION WITH THE UNIVERSITY OF VERONA

- Thesis title: "Learning-Based Methods for Enabling On-Edge, Accurate, Sustainable, and Human-Centered Intelligent Manufacturing".

Verona, Italy

Nov. 2021 - Nov. 2024

### M.Sc. in Computer Engineering for Robotics and Smart Industry

UNIVERSITY OF VERONA

- Thesis title: "Embedded Deep Learning for Computer Vision: A Case Study on Object Tracking".

Verona, Italy

2019 - 2021

### B.Sc. in Computer Science

UNIVERSITY OF VERONA

- Thesis title: "Linux Kernel: Organization, Structures and Process Management".

Verona, Italy

2016 - 2019

## Research Experiences

### Research Fellow

UNIVERSITY OF VERONA - DEPARTMENT OF ENGINEERING FOR INNOVATION MEDICINE

- Grant title: "Sustainability: Tools and Models for Innovation Towards Carbon Neutrality". FSE Project Code: 1001-0001-231- 2024 (DGR No. 231 of 13/03/2024). Research and development of innovative strategies for achieving carbon neutrality.

Verona, Italy

Dec. 2024 - Jul. 2025

### Research Assistant

HUMATICS | SYS-DAT GROUP

- Deep learning models are often computationally expensive, hindering their use in resource-constrained edge systems. During this period, my work was focused on implementing pruning and quantization optimization techniques on company confidential deep learning models.

Verona, Italy

Jan. 2021 - Aug. 2021

### Research Fellow

EDALAB S.R.L.

- Communication protocols are the foundation of Internet of Things (IoT) applications. During this period, my work was focused on implementing the Modbus, OPC-UA, and MQTT protocols inside the company's BOX-IO embedded system.

San Giovanni Lupatoto, Italy

Oct. 2019 - Dec. 2021

## Teaching Experiences

### Teaching Assistant

UNIVERSITY OF VERONA

- Course "Topics on Computer Architecture and Operating Systems (2024/2025)" of the Bachelor's degree in Computer Science.
- Course "Hardware Components Design on FPGA (2023/2025)" of the Bachelor's degree in Computer Science.
- Course "Systems Design Laboratory (2023/2024)" of the Master's degree in Computer Engineering for Robotics and Smart Industry.
- Course "Machine Learning & Artificial Intelligence (2022/2023)" of the Master's degree in Computer Engineering for Robotics and Smart Industry.
- Course "Computer Vision & Deep Learning (2022/2023)" of the Master's degree in Artificial Intelligence.
- Course "Signal and Image Processing (2022/2023)" of the Bachelor's degree in Computer Science.
- Course "Topics of Operating Systems and Networks (2020/2021)" of the Bachelor's degree in Bioinformatics.
- Course "Network Programming and Security (2020/2021)" of the Bachelor's degree in Computer Science.
- Course "Programming I (2020/2021)" of the Bachelor's degree in Computer Science.

Verona, Italy

2020 - 2025

## Reviewer Experiences

### JOURNALS

- 2023 - Present **International Journal of Computer Vision**, Springer Netherlands.
- 2023 - Present **IEEE Internet of Things Journal**, IEEE Inc.
- 2023 - Present **Future Generation Computer Systems**, Elsevier B.V.
- 2022 - Present **Pattern Recognition**, Elsevier Ltd.

### CONFERENCES

- 2024 - Present **Computer Vision and Pattern Recognition Conference (CVPR)**, CVF/IEEE Inc.
- 2023 - Present **International Conference on Learning Representations (ICLR)**, OpenReview.
- 2024 **European Conference on Computer Vision (ECCV)**, Springer.
- 2023 - Present **Design, Automation and Test in Europe Conference (DATE)**, IEEE Inc.

### Committees

- 2025 **Area Chair**, 23rd International Conference on Image Analysis and Processing (ICIAP). *Rome, Italy*
- 2025 **Publicity Chair**, 3rd International Conference on Frontiers of Artificial Intelligence (FAIEMA). *Stavanger, Norway*
- 2025 **Program Committee**, International Conference on Omni-Layer Intelligent Systems (COINS). *Madison, U.S.A.*
- 2024 **Program Committee**, Unifying Representations in Neural Models Workshop (UniReps) at NeurIPS. *Vancouver, Canada*

### Honors & Awards

- 2025 **Outstanding Reviewer**, IEEE/CVF Computer Vision and Pattern Recognition Conference (CVPR). *Nashville, U.S.A*
- 2022 **Honorable Mention**, ACM/IEEE ICCAD TinyML Design Contest. *San Diego, U.S.A*
- 2016 - 2021 **Student Excellence Grant**, University of Verona. *Verona, Italy*

### Personal Qualities & Interests

- Scientific interests** Efficient Deep Learning, Representation Learning, Multi-Task Learning, Industry 4.0, IoT, Embedded Systems.
- Personal traits** Ambitious, hard-working, practical, eager to learn new skills, and highly focused on goals.
- Programming** Python, PyTorch, C, C++.
- Languages** Italian, English.

### Selected Publications

**KairosAD: A SAM-Based Model for Industrial Anomaly Detection on Embedded Devices**

2025

U KHAN, F FUMMI, **L CAPOGROSSO**

- International Conference on Image Analysis and Processing (ICIAP).

**LO-SC: Local-only Split Computing for Accurate Deep Learning on Edge Devices**

2025

**L CAPOGROSSO**, E FRACCAROLI, M CRISTANI, F FUMMI, S CHAKRABORTY

- International Conference on VLSI Design (VLSID).

**Disentangled Latent Spaces Facilitate Data-Driven Auxiliary Learning**

2025

G SKENDERI, **L CAPOGROSSO**, A TOAIARI, M DENITTO, F FUMMI, S MELZI, M CRISTANI

- Currently under review.

**MTL-Split: Multi-Task Learning for Edge Devices using Split Computing**

2024

**L CAPOGROSSO**, E FRACCAROLI, S CHAKRABORTY, F FUMMI, M CRISTANI

- Design Automation Conference (DAC).

**A Machine Learning-oriented Survey on Tiny Machine Learning**

2024

**L CAPOGROSSO**, F CUNICO, DS CHENG, F FUMMI, M CRISTANI

- IEEE Access.

**Split-Et-Impera: A Framework for the Design of Distributed Deep Learning Applications**

2023

**L CAPOGROSSO**, F CUNICO, M LORA, M CRISTANI, F FUMMI, D QUAGLIA

- Design and Diagnostics of Electronic Circuits and Systems (DDECS).

**I-SPLIT: Deep Network Interpretability for Split Computing**

2022

F CUNICO, **L CAPOGROSSO**, F SETTI, D CARRA, F FUMMI, M CRISTANI

- International Conference on Pattern Recognition (ICPR).