# Curriculum Vitae

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## Personal Information

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| Name | Pierluigi Zama Ramirez, PhD |
| Date of Birth | *December 29th, 1992* |
| Citizenship | *Italian* |
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| Website | https://pierlui92.github.io/ |
| Google Scholar | https://scholar.google.com/citations?user=OAYAmKYAAAAJ&hl=it |
| ResearchGate | https://www.researchgate.net/profile/Pierluigi-Zama-Ramirez-2 |
| Scopus | https://www.scopus.com/authid/detail.uri?authorId=57209021298 |
| Semantic Scholar | https://www.semanticscholar.org/author/Pierluigi-Zama-Ramirez/80804241 |
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## About Me

**Short Bio**
I received the Bachelor's and Master's degrees in Computer Engineering and the PhD in Computer Science and Engineering from the University of Bologna (Italy) in 2014, 2017, and 2021, respectively. I am a computer science researcher at the Department of Computer Science and Engineering (DISI) of the University of Bologna. I am covering the role of Assistant Professor ("RTDA") in the same department.

**Research Topics**
My research areas are Computer Vision and Artificial Intelligence.

**Neural Networks for Computer Vision**
Inferring scene properties from data captured by sensors, such as cameras and 3D sensors, is essential for many practical applications, including autonomous driving, medical imaging, robot navigation, and others. My research focuses on addressing this goal by employing deep neural networks. During these years, I have developed novel techniques for various tasks, including semantic segmentation, depth estimation, optical flow, camera calibration, registration, anomaly detection, and 3D computer vision. Examples of publications in this field include top conference papers such as [P5], [P10], [P11], [P17], [P19], [P23], as well as top journal articles such as [J1], [J3], [J4], and [J5].

**Weakly Supervised Learning**
Machine learning and deep learning approaches require a large number of training data points with annotations to perform accurately in unseen environments. However, collecting such annotations is a time-consuming and tedious task. In my research, I developed several techniques to address this problem, ranging from transfer learning, unsupervised domain adaptation, self-supervised techniques, and representation learning approaches. Examples of publications in top venues in this field are [P3], [J2], and [J3].

**Neural Networks as New Data Modality**
The ongoing deep learning revolution of the last decade has led to the training of hundreds of millions of neural networks (NNs) on diverse datasets. At the same time, the recent rise of foundation models has led to a rapid increase in the number of publicly available neural network models. On Hugging Face alone, there are over a million models, with thousands more added daily. As a result, they can be considered a new independent modality, and the ample knowledge contained in the parameters, the abstraction learned via training, as well as the behaviors of the trained models themselves, are stored in the architectures and parameters of the trained NNs. My research focuses on extracting information by processing neural functions, particularly in analyzing neural fields — networks that represent individual instances of continuous signals, such as images, videos, 3D scenes, and audio. Examples of publications in top venues in this field are [P14], [P18], [P25], and [J6].

## Education

**2017 – 2021**    **Ph.D.** in Computer Science and Engineering *(University of Bologna, Italy)*
Fundings: T3Lab
PhD Thesis: *"Deep Scene Understanding with Limited Training Data."* approved after examination by Prof. Gabriel Brostow and Prof. Elisa Ricci.
Thesis available at: http://amsdottorato.unibo.it/9815/1/zamaramirez_pierluigi_tesi.pdf
Supervisor: Prof. Luigi Di Stefano
Area of Study: Computer Vision and Artificial Intelligence
Date: 27/05/2021

**2019**    International Computer Vision Summer School *(Sicily, Italy)*

**2017**    International Summer School on Deep Learning *(Bilbao, Spain)*

**2014 – 2017**    **Master Degree** in Computer Engineering *(University of Bologna, Italy)*
*110L/110 - Magna cum Laude*
Thesis: *"Estimation of depth and semantics by a CNN trained on computer-generated and real data"*
Supervisor: Prof. Luigi Di Stefano
Area of Study: Computer Vision
Date: 14/03/2017

**2011 – 2014**    **Bachelor Degree** in Computer Engineering *(University of Bologna, Italy)*
*110L/110 - Magna cum Laude*
Thesis: *"Control of peripheral devices mapped on a Zynq platform with Linux"*
Supervisor: Prof. Stefano Mattoccia
Area of Study: Embedded Systems
Date: 11/12/2014

## Certifications

**14/03/2025 – 14/03/2037**    **Abilitazione Scientifica Nazionale (ASN) al ruolo di professore di II fascia** [Link]
Code: 09/H1 - Information processing systems

## Awards

**2025**    **Outstanding Reviewer** - The IEEE/CVF Conference on Computer Vision and Pattern Recognition 2025 (**CVPR 2025**) (https://cvpr.thecvf.com/Conferences/2025/ProgramCommittee)

**2021**    **Best Paper Honorable Mention** to our work *"Neural Disparity Refinement for Arbitrary Resolution Stereo"* - International Conference on 3D Vision (**3DV 2021**) (https://3dv2021.surrey.ac.uk/prizes/)

## Research Contracts

**03/2024 – Now**    **Junior Assistant Professor (RTDA)** @ "Department of Computer Science and Engineering (DISI)" *(University of Bologna, Italy)*

**03/2021 – 2024**    **Postdoctoral Researcher** @ "Department of Computer Science and Engineering (DISI)" *(University of Bologna, Italy)*

   **Fund Manager & Advisor**: Luigi Di Stefano.

**20/04/2020 – 20/09/2020**    **Research Intern** @ "Google Zurich" *(Zurich, Switzerland)*

   **Supervisor:** Prof. Federico Tombari

   **Job Description:** Development of novel views synthesis techniques for image editing.

**01/07/2017 – 31/10/2017**    **Research Scholarship** @ Bierrebi *(Bologna, Italy)*

   **Advisor:** Luigi Di Stefano

   **Job Description:** Development of novel technologies for:
- Anomaly detection of fabrics on an industrial carry roller.
- Calibration techniques for linear cameras.

## Research Projects

**03/2025 – Now**
**Title:** Inkside fellowship

**Project Supervisor**: Prof. Luigi Di Stefano

**External Supervisor**: Niccolò Poggioli (Inkside)

**Description**: Developing generative models for ceramics graphics.

**Role**: As a senior researcher, I am supervising a junior researcher who is working on the project.

**09/2023 – Now**
**Title:** Quality Control of Large Urban Environments

**Project Supervisor**: Prof. Luigi Di Stefano

**External Supervisor**: Alioscia Petrelli (SINA)

**Description**: Developing techniques for highways quality control. The deployed algorithms are part of the SINA working pipeline.

**Role**: As a senior researcher, I am supervising a PhD student who is working on the project.

**03/2023 – Now**
**Title**: Qualitrack 4.0

**Project Supervisor**: Prof. Luigi Di Stefano

**External Supervisor**: Donato Laico (SACMI), Gildo Bosi (SACMI)

**Description**: Developing novel anomaly detection techniques from RGB images and 3D data in industrial manufacturing. The deployed algorithms will be part of several SACMI products.

**Role**: As a senior researcher, I am supervising a PhD student who is working on the project.

**03/2021 – 03/2022**
**Title:** Multimodal Sensor Registration

**Project Supervisors**: Prof. Luigi Di Stefano, Prof. S. Mattoccia, Dr. M. Poggi, Prof. S. Salti

**External Supervisor**: Jussi Yli-Äyhö (Huawei)

**Collaborator**: Dr. Fabio Tosi

**Description**: Developing a new core technology for accurately registering two images captured by different modalities, such as an RGB and a multi-spectral (MS) sensor, using self-supervised deep learning techniques.

**Role**: Conceive and develop new ideas to achieve the objective.

**Scientific Deliverables**: The following is a list of the scientific deliverables produced in the project:
- D.1.1: Flow estimation method for heterogeneous RGB sensors
- D.1.2: Flow estimation method for an RGB and a multi-spectral (MS) camera
- D.1.3: Live demo of flow estimation from heterogeneous RGB sensors
- D.1.4: Feasibility study report on flow estimation from RGB and event-based cameras
- D.1.5: Online adaptive flow estimation method from an RGB camera and an MS sensor
- D.2.1: Evaluation methodologies and acquisition setup definition
- D.2.2: Large annotated dataset with ground truth
- D.2.3: Protocol for evaluating the performance of developed methodologies

**Papers and Code**: In this project, 4 papers were published at the CVPR and 3DV conferences, [P7], [P10], [P11], [P12]. One of these papers received the best honorable mention award at the 3DV 2021 conference [P7].

**01/11/2017 – 01/05/2018**
**Title:** AIDA - Adaptive Industrial Automation Through Cyber-Physical Vision System

**Project Supervisor:** Prof. Luigi Di Stefano

**External Supervisor:** Claudio Salati (T3Lab), Claudio Saporetti (Datalogic)

**Description:** AIDA is a co-funded Emilia-Romagna Region project for Industry 4.0.

**Website:** https://www.youtube.com/watch?v=UB00XwW5Gz4&t=47s

**Role:** Development of a deep learning architecture aimed at detecting hazardous materials and estimating the orientation of packages on an industrial carry roller.

# Publications

All publications are peer-reviewed conference or journal publications and top tier in the respective field. **ICCV**, **ECCV**, **NeurIPS**, **ICLR**, and **CVPR** are highly competitive with acceptance rates of less than 30%. **CVPR** and **TPAMI** are the most highly cited IEEE conference (https://research.com/conference-rankings/computer-science) and journal (https://research.com/journals-rankings/computer-science) with the highest impact in Engineering and Computer Science. **CVPR**, **NeurIPS**, **ICLR**, and **ICCV** are among the most impactful conferences in all of computer science.

* indicates *Joint first authorship.*

**Bibliometrics**    *Number of Citations:* 734 (Google Scholar), 392 (Scopus)

*i10-Index:* 20 (Google Scholar)

*h-Index:* 17 (Google Scholar), 13 (Scopus)

Updated: 30.04.2025

**Journals**    Sorted by publication date

[J6]    **P. Zama Ramirez**\*, L. De Luigi\*, D. Sirocchi\*, A. Cardace, R. Spezialetti, F. Ballerini, S. Salti, L. Di Stefano, "Deep Learning on Object-centric 3D Neural Fields", in IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**, Q1 SJR Rank), https://doi.org/10.1109/TPAMI.2024.3430101

[J5]    F. Tosi, F. Aleotti, **P. Zama Ramirez**, M. Poggi, S. Salti, S. Mattoccia and L. Di Stefano, *"Neural Disparity Refinement"* in IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**, Q1 SJR Rank), https://doi.org/10.1109/TPAMI.2024.3411292

[J4]    **P. Zama Ramirez**, A. Costanzino, F. Tosi, M. Poggi, S. Salti, S. Mattoccia and L. Di Stefano, *"Booster: a Benchmark for Depth from Images of Specular and Transparent Surfaces"* in IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**, Q1 SJR Rank), https://doi.org/10.1109/TPAMI.2023.3323858

[J3]    A. Cardace, A. Conti, **P. Zama Ramirez**, R. Spezialetti, S. Salti and L. Di Stefano, *"Boosting Multi-Modal Unsupervised Domain Adaptation for LiDAR Semantic Segmentation by Self-Supervised Depth Completion"*, in IEEE Access, vol. 11, pp. 85155-85164, 2023 (Q1 SJR Rank), https://doi.org/10.1109/ACCESS.2023.3304542.

[J2]    **P. Zama Ramirez**\*, A. Cardace\*, L. D. Luigi\*, A. Tonioni, S. Salti and L. D. Stefano, "Learning Good Features to Transfer Across Tasks and Domains," in IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**, Q1 SJR Rank), https://doi.org/10.1109/TPAMI.2023.3240316.

[J1]    D. De Gregorio, M. Poggi, **P. Zama Ramirez**, G. Palli, S. Mattoccia and L. Di Stefano, "Beyond the Baseline: 3D Reconstruction of Tiny Objects With Single Camera Stereo Robot," in IEEE Access (Q1 SJR Rank), vol. 9, pp. 119755-119765, 2021, https://doi.org/10.1109/ACCESS.2021.3108626.

**Conference Proceedings**    Sorted by publication date

[P25]    Andrea Amaduzzi, **Pierluigi Zama Ramirez**, Giuseppe Lisanti, Samuele Salti, Luigi di Stefano *"LLaNA: Large Language and NeRF Assistant"*. Thirty-Eighth Annual Conference on Neural Information Processing Systems (**NeurIPS**, A++ GRIN Rank), 2024. https://openreview.net/pdf/774a599cd0be03181b834cd41353395dbb642592.pdf

[P24]    **P. Zama Ramirez**, A. Costanzino, F. Tosi, M. Poggi, L. Di Stefano, J.-B. Weibel, D. Bauer, D. Antensteiner, M. Vincze, J. Li, Y. Huang, J. Zhang, Y. Wang, J. Zheng, L. Shen, Z. Cao, Z. Song, Z. Wang, R. Zhu, H. Zhang, R. Li, J. Wu, X. Li, Y. Zhu, J. Sun, Y. Zhang, P. Sun, Y. Yao, W. Zhao, K. Jiang, J. Jiang, M. Lavreniuk, P. Li, J.-L. Wang *"TRICKY 2024 Challenge on Monocular Depth from Images of Specular and Transparent Surfaces"*. The 18th European Conference on Computer Vision Workshops (**ECCVW**), 2024.

[P23]    F. Tosi, **P. Zama Ramirez**, M. Poggi. *"Diffusion Models for Monocular Depth Estimation: Overcoming Challenging Conditions"*. The 18th European Conference on Computer Vision (**ECCV**, A++ GRIN Rank), 2024. https://diffusion4robustdepth.github.io/

[P22] **P. Zama Ramirez**, F. Tosi, L. Di Stefano, R. Timofte, A. Costanzino, M. Poggi, S. Salti, S. Mattoccia, .. *"NTIRE 2024 Challenge on HR Depth From Images of Specular and Transparent Surfaces"*. IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPRW), 2024, https://openaccess.thecvf.com/content/CVPR2024W/NTIRE/papers/Ramirez_NTIRE_2024_Challenge_on_HR_Depth_from_Images_of_Specular_CVPRW_2024_paper.pdf.

[P21] A. Costanzino, **P. Zama Ramirez**, M. Del Moro, A. Aiezzo, G. Lisanti, L. Di Stefano. *"Test Time Training for Industrial Anomaly Segmentation"*. IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPRW), 2024, https://openaccess.thecvf.com/content/CVPR2024W/VAND/papers/Costanzino_Test_Time_Training_for_Industrial_Anomaly_Segmentation_CVPRW_2024_paper.pdf.

[P20] F. Ballerini, **P. Zama Ramirez**, R. Mirabella, S, Salti, L. Di Stefano. *"Connecting NeRFs, Images, and Text"*. IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPRW), 2024, https://openaccess.thecvf.com/content/CVPR2024W/INRV/papers/Ballerini_Connecting_NeRFs_Images_and_Text_CVPRW_2024_paper.pdf.

[P19] A. Costanzino*, **P. Zama Ramirez***, G. Lisanti, L. Di Stefano *"Multimodal Industrial Anomaly Detection by Crossmodal Feature Mapping."*, IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**, A++ GRIN Rank), 2024, https://openaccess.thecvf.com/content/CVPR2024/papers/Costanzino_Multimodal_Industrial_Anomaly_Detection_by_Crossmodal_Feature_Mapping_CVPR_2024_paper.pdf

[P18] A. Cardace, **P. Zama Ramirez**, F. Ballerini, S. Salti, L. Di Stefano *"Neural Processing of Tri-plane Hybrid Neural Fields."*, The Twelfth International Conference on Learning Representations (**ICLR**, A++ GRIN Rank), 2024, https://openreview.net/pdf?id=zRkM6UcA22

[P17] A. Costanzino*, **P. Zama Ramirez***, M. Poggi*, F. Tosi, S. Mattoccia and L. Di Stefano, *"Learning Depth Estimation for Transparent and Mirror Surfaces"* 2023 IEEE/CVF International Conference on Computer Vision (**ICCV**, A++ GRIN Rank), pp.9244-9255, https://openaccess.thecvf.com/content/ICCV2023/papers/Costanzino_Learning_Depth_Estimation_for_Transparent_and_Mirror_Surfaces_ICCV_2023_paper.pdf

[P16] **P. Zama Ramirez**, F. Tosi, L. Di Stefano, R. Timofte, A. Costanzino, M. Poggi, S. Salti, S. Mattoccia, J. Shi, D. Zhang, Y. A, Y. Jin, D. Li, C. Li, Z. Liu, Q. Zhang, Y. Wang, S. Yin, , *"NTIRE 2023 Challenge on HR Depth From Images of Specular and Transparent Surfaces"*. 2023, IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshops, 2023, pp. 1384-1395. https://openaccess.thecvf.com/content/CVPR2023W/NTIRE/papers/Ramirez_NTIRE_2023_Challenge_on_HR_Depth_From_Images_of_Specular_CVPRW_2023_paper.pdf

[P15] A. Cardace, **P. Zama Ramirez**, S. Salti and L. Di Stefano, *"Exploiting the Complementarity of 2D and 3D Networks to Address Domain-Shift in 3D Semantic Segmentation"*, 2023, IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshops, pp. 98-109 https://openaccess.thecvf.com/content/CVPR2023W/WAD/papers/Cardace_Exploiting_the_Complementarity_of_2D_and_3D_Networks_To_Address_CVPRW_2023_paper.pdf

[P14] L. De Luigi*, A. Cardace*, R. Spezialetti*, **P. Zama Ramirez**, S. Salti, L. Di Stefano, "Deep Learning on Implicit Neural Representations of Shapes", The Eleventh International Conference on Learning Representations (**ICLR**, A++ GRIN Rank), 2023, https://openreview.net/forum?id=OoOIW-3uadi

[P13] A. Cardace, R. Spezialetti, **P. Zama Ramirez**, S. Salti and L. D. Stefano, "Self-Distillation for Unsupervised 3D Domain Adaptation," 2023 IEEE/CVF Winter Conference on Applications of Computer Vision (WACV, A GRIN Rank), Waikoloa, HI, USA, 2023, pp. 4155-4166, https://doi.org/10.1109/WACV56688.2023.00415.

[P12] M. Poggi*, **P. Zama Ramirez***, F. Tosi*, S. Salti, L. Di Stefano, S. Mattoccia, *"Cross-Spectral Neural Radiance Fields"*, at the 2022 International Conference on 3D Vision (3DV), Prague, Czech Republic, 2022, pp. 606-616, https://doi.org/10.1109/3DV57658.2022.00071.

[P11] **P. Zama Ramirez***, F. Tosi*, M. Poggi*, S. Salti, L. Di Stefano, S. Mattoccia, *"Open Challenges in Deep Stereo: the Booster Dataset"*, 2022 IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**, A++ GRIN Rank), 2022, pp. 21136-21146, https://doi.org/10.1109/CVPR52688.2022.02049.

[P10] F. Tosi*, **P. Zama Ramirez**\*, M. Poggi*, S. Salti, L. Di Stefano, S. Mattoccia, *"RGB-Multispectral Matching: Dataset, Learning Methodology, Evaluation"* 2022 IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**, A++ GRIN Rank), 2022, pp. 15937-15947, https://doi.org/10.1109/CVPR52688.2022.01549.

[P9] A. Cardace, L. De Luigi, **P. Zama Ramirez**, S. Salti and L. Di Stefano, "Plugging Self-Supervised Monocular Depth into Unsupervised Domain Adaptation for Semantic Segmentation," 2022 IEEE/CVF Winter Conference on Applications of Computer Vision (WACV, A GRIN Rank), Waikoloa, HI, USA, 2022, pp. 1999-2009, https://doi.org/10.1109/WACV51458.2022.00206.

[P8] A. Cardace, **P. Zama Ramirez**, S. Salti and L. Di Stefano, "Shallow Features Guide Unsupervised Domain Adaptation for Semantic Segmentation at Class Boundaries," 2022 IEEE/CVF Winter Conference on Applications of Computer Vision (WACV, A GRIN Rank), Waikoloa, HI, USA, 2022, pp. 2010-2020, https://doi.org/10.1109/WACV51458.2022.00207.

[P7] F. Aleotti*, F. Tosi*, **P. Zama Ramirez**\*, M. Poggi, S. Salti, L. Di Stefano, S. Mattoccia, *"Neural Disparity Refinement for Arbitrary Resolution Stereo"*, 2021 International Conference on 3D Vision (**3DV**), 2021, pp. 207-217, https://doi.org/10.1109/3DV53792.2021.00031. (**ORAL**) (**Best Paper Honarable Mention Award**)

[P6] A. Cardace, R. Spezialetti, **P. Zama Ramirez**, S. Salti and L. D. Stefano, "RefRec: Pseudo-labels Refinement via Shape Reconstruction for Unsupervised 3D Domain Adaptation," 2021 International Conference on 3D Vision (3DV), London, United Kingdom, 2021, pp. 331-341, https://doi.org/10.1109/3DV53792.2021.00043. (**ORAL**).

[P5] F. Tosi*, F. Aleotti*, **P. Zama Ramirez**\*, M. Poggi, S. Salti, L. Di Stefano, S. Mattoccia, *"Distilled Semantics for Comprehensive Scene Understanding from Videos"*, 2020 IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**, A++ GRIN Rank), 2020, pp. 4653-4664, https://doi.org/10.1109/CVPR42600.2020.00471.

[P4] **P. Zama Ramirez**, C. Paternesi, L. D. Luigi, L. Lella, D. D. Gregorio and L. D. Stefano, "Shooting Labels: 3D Semantic Labeling by Virtual Reality," 2020 IEEE International Conference on Artificial Intelligence and Virtual Reality (AIVR), Utrecht, Netherlands, 2020, pp. 99-106, https://doi.org/10.1109/AIVR50618.2020.00027 (**ORAL**) (**Best Paper Finalist**)

[P3] **P. Zama Ramirez**, A. Tonioni, S. Salti and L. D. Stefano, "Learning Across Tasks and Domains," 2019 IEEE/CVF International Conference on Computer Vision (**ICCV**, A++ GRIN Rank), Seoul, Korea (South), 2019, pp. 8109-8118, https://doi.org/10.1109/ICCV.2019.00820

[P2] **P. Zama Ramirez**, M. Poggi, F. Tosi, S. Mattoccia, L. Di Stefano. "Geometry meets semantics for semi-supervised monocular depth estimation". In Computer Vision–ACCV 2018: 14th Asian Conference on Computer Vision, Perth, Australia, December 2–6, 2018, Revised Selected Papers, Part III 14 (pp. 298-313). Springer International Publishing. https://doi.org/10.1007/978-3-030-20893-6_19

[P1] **P. Zama Ramirez**, A. Tonioni and L. Di Stefano, "Exploiting semantics in adversarial training for image-level domain adaptation," 2018 IEEE International Conference on Image Processing, Applications and Systems (IPAS), Sophia Antipolis, France, 2018, pp. 49-54, https://doi.org/10.1109/IPAS.2018.8708884 (**ORAL**)

**Arxiv**

[U1] **P. Zama Ramirez**, A. Tonioni, F. Tombari *"Unsupervised Novel View Synthesis from a Single Image"*, https://arxiv.org/abs/2102.03285

## Conference & Journal Editorial Service

| 2025 | **IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)** [Conference] Associate Editor |
| 2024 – Now | **The Visual Computer** [Journal] Associate Editor |

## Conference & Journal Reviewing Services

**CVPR** - IEEE Conference on Computer Vision and Pattern Recognition (2021,2022,2023,2025)

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| **NeurIPS** | - Conference on Neural Information Processing Systems (2024) |
| **ECCV** | - European Conference on Computer Vision (2022, 2024) |
| **ICCV** | - IEEE International Conference on Computer Vision (2021,2023,2025) |
| **WACV** | - IEEE/CVF Winter Conference on Applications of Computer Vision (2022) |
| **IROS** | - IEEE/RSJ International Conference on Intelligent Robots and Systems (2018, 2023) |
| **ECAI** | - European Conference on Artificial Intelligence (2020) |
| **NTIRE** | - New Trends in Image Restoration and Enhancement Workshop and Challenges (2023, 2024) |

## Organization of Workshops at International Conferences

[W5] *"TRICKY 2025: Transparent & Reflective objects In the wild Challenges"*, **ICCV 2025** (Honolulu, Hawuaii) - **Roles:** Organizer, general co-chair.
The workshop will be held in conjunction with ICCV in Oct. 2025

[W4] *"NTIRE 2025: 10th New Trends in Image Restoration and Enhancement Workshop and Challenges"*, **CVPR 2025** (Nashville, TN) [Link] - **Roles:** Organizer
The workshop will be held in conjunction with CVPR in Jun. 2025.

[W3] *"TRICKY 2024: Transparent & Reflective objects In the wild Challenges"*, **ECCV 2024** (Milan, Italy) [Link] - **Roles:** Organizer, general co-chair
- 6 renowned speakers in the field of computer vision and artificial intelligence
- $\sim$ 1 challenge with hundreds of participants from all around the world
- with proceedings: $\sim$ 5 papers accepted

[W2] *"NTIRE 2024: 9th New Trends in Image Restoration and Enhancement Workshop and Challenges"*, **CVPR 2024** (Seattle, Washington) [Link] - **Roles:** Organizer
- 3 renowned speakers in the field of computer vision and artificial intelligence.
- $\sim$ 20 challenges with hundreds of participants from all around the world.
- with proceedings: $\sim$ 75 papers accepted.

[W1] *"NTIRE 2023: 8th New Trends in Image Restoration and Enhancement Workshop and Challenges"* **CVPR 2023** (Vancouver, Canada)[Link]
**Role:** Organizer, co-chair
- 4 renowned speakers in the field of computer vision and artificial intelligence.
- $\sim$ 10 challenges with hundreds of participants from all around the world.
- with proceedings: $\sim$ 75 papers accepted.

## Live Presentations at Conferences

**2025**

Lugo, Italy  **Invited Speaker** and panel discussion at the Italian conference "L'intelligenza artificiale e la persona, solo una sfida technologica?".

**2024**

Milan, Italy  Presentation of [P23] at the European Conference of Computer Vision (ECCV) 2024.

Milan, Italy  **Workshop Chair** of [W3] at the European Conference of Computer Vision (ECCV) 2024.

Dakar, Senegal  **Invited Speaker** at the Weakly Supervised Computer Vision Workshop in the conference Deep Learning Indaba 2024 entitled "Neural Processing of 3D Neural Fields". Recorded Talk: https://www.youtube.com/watch?v=OEvVWnLMEso&t=3900s.

Lugo, Italy  **Invited Speaker** at Rotary Club. Presentation entitled "New Frontiers of Artificial Intelligence".

**2023**

Paris, France  Presentation of [P17] at the International Conference on Computer Vision (ICCV) 2023.

Milan, Italy  Presentation of [P17] at the Synapse 2023, the AI Symposium organized by Bending Spoons. Note: The work was selected as one of the top submissions and awarded a prize of € 1,000.

Vancouver, Canada  **Workshop Chair** of [W1] at the Computer Vision and Pattern Recognition Conference (CVPR) 2023.

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| Vancouver, Canada | Presentation of [P15], [P16] at the Computer Vision and Pattern Recognition Conference (CVPR) 2023. |
| Kigali, Rwanda | The ICLR 2023 work, [P14], was selected to be presented at the "Neural Fields across Fields: Methods and Applications of Implicit Neural Representations" workshop held in conjunction with ICLR 2023. |

**2022**

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| New Orleans, USA | Poster presentation of [P10] and [P11] at the Computer Vision and Pattern Recognition Conference (CVPR) 2022. |

**2021**

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| Online | Poster presentation of [P6] and [P7] at the International Conference on 3D Vision (3DV) 2021. |

**2020**

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| Online | Oral presentation of [P4] at the 3rd International Conference on Artificial Intelligence & Virtual Reality. |
| Online | Poster presentation of [P6] at the Computer Vision and Pattern Recognition Conference (CVPR) 2020. |

**2019**

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| Seoul, Korea | Poster presentation of [P3] at the International Conference on Computer Vision (ICCV) 2021 |
| Los Angeles, USA | Poster presentation of the work "Shooting Labels by Virtual Reality" at the Third Workshop on Computer Vision for AR/VR, held in conjunction with CVPR 2019. Related Paper: https://static1.squarespace.com/static/5c3f69e1cc8fedbc039ea739/t/5d01638662182d0001b6f7f6/1560372111582/9_CVPR_2019_VR.pdf |

**2018**

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| Perth, Australia | Poster presentation of [P2] at the 14th Asian Conference on Computer Vision |
| Nice, France | Oral presentation of [P1] at the Third IEEE International Image Processing, Applications and Systems Conference |
| Bologna, Italy | Poster presentation of the work "Novel Generative Model to Synthetize Realistic Training Images" at SIAM Conference on Imaging Science 2018, https://www.siam-is18.dm.unibo.it/presentations/874.html |
| Bologna, Italy | Oral presentation of the work "Large Scale 3D Semantic Mapping. European Machine Vision Association Forum" at the European Machine Vision Forum (EMVA) 2018 |
| Bologna, Italy | Oral presentation of the work "Domain Adaptation by a Semantic-Aware GAN" at the European Machine Vision Forum (EMVA) 2018 |

## Collaborations and Participations in Research Groups

| | |
|---|---|
| 2017 - Now | **CVLab**. The primary research group I worked with since the conclusion of my two-year master degree. The group is led by Prof Luigi Di Stefano. It includes professors Samuele Salti, Giuseppe Lisanti, Stefano Mattoccia, Matteo Poggi, and operates at the University of Bologna. |
| 2022 - Now | International collaboration between **ETH Zurich**, **University of Wurzburg**, and **University of Bologna**. <br> The research group is working on the problem of image enhancement and restoration. The UniBo team is composed of a subset of the CVLab Research group, while the ETH and Wurzburg team is led by Prof. Radu Timofte. |
| 2022 - Now | Collaboration between **Sacmi** and **University of Bologna**. <br> The research group is developing and testing computer vision and artificial intelligence technologies for industrial pipelines. The UniBo team is composed of a subset of the CVLab Research group, while the SACMI team is led by Dr. Donato Laico. |

2024 - Now  International Collaboration between **Technische Universität Wien (TUW)** , **Technische Universität Munich (TUM)**, and **University of Bologna**.
The research group is developing new computer vision models to handle non-Lambertian objects. The UniBo team is composed of a subset of the CVLab Research group, the TUW team by Prof. Markus Vincze, while the TUM team by Prof. Benjamin Bussam.

2023 - Now  Collaboration between **SINA** and **University of Bologna**. The research group is developing computer vision and artificial intelligence methods for highway control. The UniBo team is composed of a subset of the CVLab Research group, while the SINA team is led by Dr. Alioscia Petrelli.

2021 - 2022  International Collaboration between **Huawei Image Technologies Finland Team** and **University of Bologna**. The research group developed technologies for multispectral imaging sensors. The UniBo team is composed of a subset of the CVLab Research group, while the Huawei team is led by Jussi Yli-Äyhö.

2020 - 2021  **Computer Vision and Machine Learning Google Zurich Research Group** led by Prof. Federico Tombari. I was part of the team during my research period at Google, and our collaboration continued for an additional year afterward.

## Teaching Activities

2024 - 2025  **Bachelor Course Teacher**
"Informatica Industriale", Modulo 2 [Link]
Department of Electrical, Electronic, and Information Engineering "Guglielmo Marconi" (DEI)
University of Bologna
Degree in Mechatronics
30 hours, 3 CFU
Number of students: $\sim$ 50

2024 - 2025  **Bachelor Course Teacher**
"Laboratorio di Informatica P-2-Lu" [Link]
Department of Electrical, Electronic, and Information Engineering "Guglielmo Marconi" (DEI)
University of Bologna
Degree in Mechatronics
30 hours, 3 CFU
Number of students: $\sim$ 30

2023 - 2024  **Bachelor Course Teacher**
"Laboratorio di Informatica P-2-Lu" [Link]
Department of Electrical, Electronic, and Information Engineering "Guglielmo Marconi" (DEI)
University of Bologna
Degree in Mechatronics
30 hours, 3 CFU
Number of students: $\sim$ 30

2022 - 2023  **Bachelor Course Teacher**
"Laboratorio di Informatica P-2-Lu" [Link]
Department of Electrical, Electronic, and Information Engineering "Guglielmo Marconi" (DEI)
University of Bologna
Degree in Mechatronics
30 hours, 3 CFU
Number of students: $\sim$ 30
Student Satisfaction Rate: 84,6% (Average: 74,3%)

2024  **Training Course Instructor**
Fundamentals of Computer Vision
SCM Group (Rimini).

| 2023 | **PhD Course Teacher** |
|---|---|
| | "*Deep Scene Understanding From Images for Monitoring Applications*" [Link] |
| | University of Bologna (Bologna, Italy) |
| | PhD course in EIT4SEMM |
| | 20 hours |
| | Number of students: $\sim 30$ |
| 2022 | **PhD Course Teacher** |
| | "*Deep Scene Understanding From Images*" [Link] |
| | University of Bologna (Bologna, Italy) |
| | PhD course in Computer Science and Engineering |
| | 20 hours |
| | Number of students: $\sim 30$ |
| 2022 – 2024 | **Teaching Assistant** |
| | "Reti Logiche T" |
| | University of Bologna *(Bologna, Italy)* |
| | Bachelor course in Automation, Electronic, and Telecommunication Engineering |
| | Professor: Tullio Salmon Cinotti |
| | Number of students: $\sim 180$ |
| 2019 – 2024 | **Teaching Assistant** |
| | "Computer Vision and Image Processing" |
| | University of Bologna *(Bologna, Italy)* |
| | Master course in Computer Engineering |
| | Professor: Luigi Di Stefano |
| | Number of students: $\sim 150$ |

## Participation in the Co-Supervision of Researchers

**PhD Students**

| | |
|---|---|
| Curti, Iacopo | 11/2024 - Now |
| Ballerini Francesco | 11/2023 - Now |
| Amaduzzi, Andrea | 01/2024 - Now |
| Costanzino, Alex | 11/2022 - Now |
| Cardace, Adriano | 11/2020 - 11/2023 |

**Research fellows**

| | |
|---|---|
| Fusconi, Matteo | 03/2025-Now |
| Curti, Iacopo | 09/2023 - 11/2024 |

## Co-Supervised Bachelor and Master Students

**Bachelor Thesis**

| | |
|---|---|
| Pumilia, Andrea | "Metodologie di Corrispondenza Stereo Basate su Deep Learning per Superfici Altamente Riflettenti e Trasparenti: Dataset e Architettura" |
| Chiarini, Alessandro | "Procedural generation of a city model for training neural networks" |
| Zoffoli, Mattia | "An Analysis of Training a Deep Object Detector with Synthetic Data" |
| Nadalini, Alessandro | "Procedural Generation of 3D city models with Blender" |
| Fabiani, Federico | "Semantic segmentation of ulcers by deep convolutional neural networks" |
| Damato, Alessandro | "Synthetic urban dataset generation through Blender" |
| Malizia, Chiara | "Convolutional Neural Networks for product sorting in fruit and vegetable sector" |
| Lella, Luigi | "Tool for annotating 3D data in Virtual Reality" |

**Master Thesis**

| | |
|---|---|
| Torzi, Luca | "An experimental study on connecting Neural Radiance Fields to images and text." |
| Lella, Luigi | "Individuazione di difetti in manufatti industriali a partire da modelli sintetici" |

| | |
|---|---|
| Gasperini, Lucia | "A multi-view dataset for multimodal Anomaly Detection and Segmentation" |
| Sirocchi, Daniele | "Nerf2vec: Deep Learning on Neural Radiance Fields" |
| Donati, Matteo | "Multi-Task Reconstruction Strategies for Unsupervised 3D Domain Adaptation" |
| Ballerini, Francesco | "Alignment of Implicit Neural Representations of 3D Shapes via Permutation Symmetries" |
| Lo Russo, Andrea | "Reti Neurali Monoculari per la stima della profondità di superfici non-Lambertiane" |
| Malizia, Chiara | "High-Resolution Monocular Depth Estimation with Stereo Proxy Supervision" |
| Menchetti, Daniele | "Domain adaptation per classificazione di pointcloud mediante pseudo-annotazioni" |
| Costanzino, Alex | "Mitigating non-Lambertian surfaces issues in Stereo Matching with Neural Radiance Fields" |
| Carloni, Gaia | "Deep refinement of a deep semantic segmentation network" |
| Domeniconi, Federico | "Deep Photometric Stereo" |
| Paternesi, Claudio | "3D Semantic Labeling by Virtual Reality" |
| Cardace, Adriano | "Learning Features Across Tasks and Domains" |

### Internships

| | |
|---|---|
| Lella, Luigi | "Perfezionamento, ingegnerizzazione e validazione sperimentale di un tool innovativo per l'annotazione di dati 3D basato su Virtual Reality (VR)" |
| Carboni, Ilenia | "Interfacciamento di occhiali smart RayBan Stories e acquisizione di un dataset stereo" |
| Mostafa, Hazem Mohamed Hassan | "Acquisizione di un dataset stereo in ambiente outdoor utilizzato per l'allenamento di una rete neurale per stereo-matching tramite algoritmi proxy-supervised." |
| Taraneh Mehdibehesht | "Sviluppo visualizzatore grafico per neural fields." |

## Institutional Roles

| | |
|---|---|
| 2025 - Now | Organizer and Teacher for "Percorsi per le Competenze Trasversali e per l'Orientamento (PCTO), Meccatronica" for Emilia Romagna high schools. |
| 2024 - Now | Co-Chair of the Admission Test Committee for the Mechatronics Degree Program |
| 2024 - Now | Member of the Internship Coordination Team for the Mechatronics Degree Program |
| 2024 - Now | Member of the Organization Team for the University Orientation Events for High Schools – Mechatronics Degree Program |

## Released Datasets and Code

### Scientific Datasets

| | |
|---|---|
| Booster Dataset | Dataset related to [P11], https://amsacta.unibo.it/6876/ Project Page: https://cvlab-unibo.github.io/booster-web/ |
| Booster Dataset - Monocular Split | Dataset related to [J4], https://amsacta.unibo.it/7161/ Project Page: https://cvlab-unibo.github.io/booster-web/ |
| RGB-MS Dataset | Dataset related to [P10], Dataset: http://amsacta.unibo.it/6877/, Project Page: https://cvlab-unibo.github.io/rgb-ms-web/ |
| X-NeRF dataset | Dataset related to [P12], Dataset: https://amsacta.unibo.it/7142/, Project Page: https://cvlab-unibo.github.io/xnerf-web/ |
| Sister dataset | Dataset related to [J1], Dataset: https://github.com/CVLAB-Unibo/sister/?tab=readme-ov-file#dataset |

### Codes

| | |
|---|---|
| nf2vec | Code related to [J6], https://cvlab-unibo.github.io/nf2vec/ |
| nf2vec | Code related to [J5], https://github.com/CVLAB-Unibo/neural-disparity-refinement |
| nf2vec | Code related to [J3], https://cvlab-unibo.github.io/cts-web/ |
| sister | Code related to [J1], https://cvlab-unibo.github.io/sister/ |
| LLaNA | Code related to [P25], https://andreamaduzzi.github.io/llana/ |
| ECCV2024 | Code related to [P23], https://diffusion4robustdepth.github.io |
| clip2nerf | Code related to [P20], https://cvlab-unibo.github.io/clip2nerf/ |

| | |
|---|---|
| CFM | Code related to [P19], https://cvlab-unibo.github.io/CrossmodalFeatureMapping/ |
| Triplane | Code related to [P18], https://github.com/CVLAB-Unibo/triplane_processing |
| Depth4Tom | Code related to [P17], https://github.com/CVLAB-Unibo/Depth4ToM-code |
| Depth4Tom | Code related to [P15], https://github.com/CVLAB-Unibo/MM2D3D |
| inr2vec | Code related to [P14], https://cvlab-unibo.github.io/inr2vec/ |
| FeatureDistillation | Code related to [P13], https://cvlab-unibo.github.io/FeatureDistillation/ |
| D4 | Code related to [P9], https://github.com/CVLAB-Unibo/d4-dbst |
| ShallowFeatures | Code related to [P8], https://github.com/CVLAB-Unibo/Shallow_DA |
| NDR | Code related to [P7], https://cvlab-unibo.github.io/neural-disparity-refinement-web/ |
| RefRec | Code related to [P6], https://cvlab-unibo.github.io/shootinglabelsweb/ |
| omeganet | Code relative to [P5], https://github.com/CVLAB-Unibo/omeganet. |
| ShootingLabels | Code related to [P4], https://cvlab-unibo.github.io/shootinglabelsweb/ |
| ATDT | Code related to [P3], https://github.com/CVLAB-Unibo/ATDT |
| SemanticMonoDepth | Code related to [P2], https://github.com/CVLAB-Unibo/Semantic-Mono-Depth |

## Technologies & Languages

| | |
|---|---|
| Languages | Italian: Mothertongue |
| | English, CEFR: C1, IELTS, 11/02/2017, Overall Brand 7.0/9.0 |
| | Spanish, CEFR: B2 |
| Programming languages | C, C++, C#, Java, Python, Prolog, VHDL, LateX |
| CV and ML frameworks | OpenCV, Tensorflow, PyTorch |
| Graphics | Blender, Unity |
| Development | VS, VS Code, Git |