Giulia Rizzoli

Ph.D Student

Research Interests

Computer Vision, Deep Learning, Continual Learning, Multi-modal, Domain Adaptation, Semantic Segmentation

Work Experience

- Feb. 2024 Visiting Researcher, Technical University of Munich (TUM). present Topic: 3D Scene Understanding for Autonomous Driving.
- Oct. 2021 Teaching Assistant, University of Padova. present Courses: Machine Learning (21/22, 23/24), Computer Vision (22/23, 23/24)

Apr. 2021 - Research Intern, Sony, Stuttgart, Germany.

Aug. 2021 3D Dataset construction and reflectance estimation from Time-of-flight

Education

- Oct. 2021 **Ph.D. in Information Engineering**, University of Padova, Department of Information present Engineering, M3DIA research group. Supervisor: Pietro Zanuttigh. Research topic: Multi-modal Scene Understanding.
- Oct. 2019 M.Sc. in ICT for Internet and Multimedia, University of Padova.
- Sept. 2021 Grade: 110/110 with honors. Thesis: Reflectance Estimation using Time-of-Flight cameras. Supervisor: Pietro Zanuttigh. Co-Supervisor: Henrik Schäffer.
- Oct. 2020 Erasmus+ in Electrical and Communication Engineering, RWTH Aachen. Mar. 2021
- Sep. 2015 B.Sc. in Information Engineering, University of Padova.
- Oct. 2019 Thesis: Methods for the analysis of heterogeneous biological signals. Supervisor: Giulia Cisotto.
- Jan. 2014 College Exchange, Kings Colleges, Bournemouth, United Kingdom.
- Mar. 2014 A-level classes in Maths, Physics, Biology, Chemistry, and Academic English.

Skills

- Programming: Python, C, C++, Matlab, R, Java
- \circ Typesetting: LATEX
- o Scientific Computing: Numpy, SciPy, Pandas, Matplotlib, Scikit-learn
- o Deep Learning: PyTorch, TensorFlow, Keras, OpenCV
- o System: Git, HPC, Singularity, Slurm
- o Languages: English (Professional), Italian (Native), German (Elementary)

Publications

Journals

- [J1] G. Rizzoli, F. Barbato, P. Zanuttigh, "Multimodal Semantic Segmentation in Autonomous Driving: A Review of Current Approaches and Future Perspectives", Technologies, 2022.
- [J2] D. Shenaj*, G. Rizzoli*, P. Zanuttigh, "Federated Learning in Computer Vision", IEEE Access, 2023.
- [J3] L. Chang, G. Rizzoli, F. Barbato, U. Michieli, Y. Niu, P. Zanuttigh, "RECALL+: Adversarial Web-based Replay for Continual Learning in Semantic Segmentation", Under Review. Conferences
- [C1] F. Barbato, G. Rizzoli, P. Zanuttigh, "Depthformer: Multimodal positional encodings and cross-input attention for transformer-based segmentation networks", in: ICASSP 2023-2023 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), IEEE, 2023.
- [C2] G. Rizzoli*, F. Barbato*, M. Caligiuri*, P. Zanuttigh, "SynDrone Multi-modal UAV Dataset for Urban Scenarios", in: Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV) Workshops, 2023.
- [C3] G. Rizzoli, D. Shenaj, P. Zanuttigh, "Source-Free Domain Adaptation for RGB-D Semantic Segmentation with Vision Transformers", Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) Workshops, 2024. (Oral).
- [C4] H. Jung, S.-C. Wu, P. Ruhkamp, P. Wang, H. Schieber, G. Rizzoli, H. Zhao, S. D. Meier, D. Roth, N. Navab, B. Busam, "HouseCat6D - A Large-Scale Multi-Modal Category Level 6D Object Pose Dataset with Household Objects in Realistic Scenarios", Under review.
- [C5] G. Rizzoli*, M. Caligiuri*, D. Shenaj, F. Barbato, P. Zanuttigh, "When Cars meet Drones: Hyperbolic Federated Learning in Adverse Weather", Under Review.
 * indicates equal contribution

Seasonal Schools

- 2023 International Summer School on Machine Vision (VISMAC)
- 2022 International Computer Vision Summer School (ICVSS), acceptance rate $\sim 24\%$
- 2020 Summer School of Enabling Technologies for Industrial Internet of Things, University of Pisa

Grants

- 2023 GINI Grant, Fondazione Aldo Gini
- 2023 Travel Fellowship, ICCV Paris, Women in Computer Vision
- 2023 DEI Grant, ICCV Paris, Computer Vision Foundation
- 2023 Travel Fellowship, Synapse AI, Bending Spoons
- 2022 Research Scholarship, Department of Information Engineering, University of Padova. Research Title: "Multi-modal Semantic Segmentation".
 Project: Enhanced Photography with Deep Learning.
- 2021 **Research Scholarship**, Department of Information Engineering, University of Padova. Research Title: "Incremental Learning Techniques for Semantic Segmentation". Project: Semantic Segmentation in the Wild.
- 2021 Erasmus+ for Traineeships
- 2020 Erasmus+ for Studies

Interests

Travelling, Hikings, Volleyball and Cats 🏠