Elena **Camuffo**

Vision/AI Engineer - PhD Student - 3D Artist

About me

I am a passionate researcher in AI, Vision and Graphics. My main research interests include AI foundation problems applied to semantic scene understanding, 3D computer vision and XR.

Personal

Sports: Tennis, Climbing & Ski
Arts: Painting & Drawing

Areas of specialization

AI foundation problems • Semantic Scene Understanding • 3D Computer Vision • Extended Reality

Soft Skills

Public speaking, teamwork, mentoring and coaching, self-organization.

Work Experience

Oct 24–Pres — **Postdoctoral Research Scientist**
University of Padova · Padova, IT
Research in 3D Computer Vision, GenAI and Foundation Models. Supervision of M.Sc. and Ph.D.

Apr 23–Apr 24 — **Intern AI and Graphics Researcher**
Samsung Research · London, UK
Efficient Object Recognition Models. Supervisor: Dr Mete Ozay.
- Improved existing algorithms in the presence of corrupted images by $\approx 10\%$ in terms of accuracy via selective normalization parameters, preserving original accuracy and efficiency.
- Improved existing algorithms in personalized object detection by developing a DEMO.
- Published 2 papers, filed 1 patent.

Sep 19–Sep 24 — **Teaching Assistant**
University of Padova · Padova, IT
M.Sc. courses: 3D Vision and eXtended Reality (4 years), Digital Forensics (1 year), Digital and Interactive Multimedia (1 year), Usability and User Experience (1 year).

Sep 22–Dec 22 — **Unity C# Developer**
Uqido S.r.l. · Padova, IT
Development of an interactive VR experience for Oculus Quest 2 platform. Collaboration with the Depart. of Pharmaceutical Sciences (UniPD).

Education

Sep 21–Sep 24 — **Ph.D. in Information Engineering**
University of Padova · Padova, IT
Research topic: "Advanced Learning Strategies for Multi-Modal Visual Scene Understanding". Supervisor: Prof. Simone Milani.
- Published first-authored papers at prestigious venues (TMM, ICASSP, ICIP).
- Collaborated with other Ph.D. students.
- Mentored B.Sc. and M.Sc. final projects.

Seasonal Schools – M2L-2024, VS3-2024, GTTI-2022, ICVSS-2022, GTTI-2021, AIRONE-2021.

Sep 24–Feb 25 — **Master in Computer Graphics**
BigRock Institute of Magic Technologies · Treviso, IT
Digital Art, Animation and Special Effects for Cinema. Autodesk Certified. Software: Maya, Unreal Engine, ZBrush, Substance Painter, Marvelous Designer, Photoshop, Nuke.

Sep 19–Sep 21 — **M.Sc. in Telecommunication Engineering**
University of Padova · Padova, IT
Grade: 110/110 summa cum laude. Thesis: "Curriculum and Contrastive learning in LiDAR Semantic Segmentation", supervised by Prof. Simone Milani and Dr. Umberto Michieli.

Talks

- **02/24** **Paper [C1] presentation** - Samsung Research Institute, London, UK.
- **03/23** **Introduction to Extended Realty** - ITIS Barsanti of Castelfranco V.to.
- **02/23** **Learning Strategies for 2D-3D semantic segmentation** - Deep Learning Ph.D. course, UniPD.
- **12/22** **Learning Strategies for 3D semantic segmentation** - DEITalks, UniPD.
- **01/22** **Introduction to Extended Realty** - IIS Veronese-Marconi of Chioggia.

Programming

Java
Python
Matlab
C/C++
C#
Others

Languages

Italian	C2	mother tongue
English	C1	● ● ● ○ | B2 Trinity ✓
French	A2	● ○ ○ ○

Certificates & Grants

- **2021** **Best student presentation award** – APCCAS conference, Taiwan.
- **2021** **Scholarship for best student award** – Seasonal School AIRONE, Scuola Superiore S.Anna, Pisa, IT.

Publications

- **C1** Elena Camuffo, Umberto Michieli, Simone Milani, Ji Joong Moon, and Mete Ozay. *Enhanced Model Robustness to Input Corruptions by Per-corruption Adaptation of Normalization Statistics*. In International Conference on Intelligent Robots and Systems (IROS). IEEE, 2024.
- **C2** Francesco Barbato, Elena Camuffo, Simone Milani, and Pietro Zanuttigh. *Continual road- scene semantic segmentation via feature-aligned symmetric multi-modal network*. In International Conference on Image Processing (ICIP). IEEE, 2024.
- **C3** Elena Camuffo, Umberto Michieli, Ji Joong Moon, Daehyun Kim, and Mete Ozay. *Fft-based selection and optimization of statistics for robust recognition of severely corrupted images*. In International Conference on Acoustics, Speech and Signal Processing (ICASSP). IEEE, 2023.
- **C4** Devid Campagnolo*, Elena Camuffo*, Umberto Michieli, Paolo Borin, Simone Milani, and Andrea Giordano. *Fully automated scan-to-bim via point cloud instance segmentation*. In International Conference on Image Processing (ICIP). IEEE, 2023.
- **C5** Elena Camuffo and Simone Milani. Continual learning for lidar semantic segmentation: Class-incremental and coarse-to-fine strategies on sparse data. In International Conference of Computer Vision and Pattern Recognition Workshops (CVPRW). IEEE, 2023.
- **C6** Elena Camuffo, Federica Battisti, Francesco Pham, and Simone Milani. *Deep 3d model optimization for immersive and interactive applications*. In 2022 10th European Workshop on Visual Information Processing (EUVIP). IEEE, 2022.
- **C7** Elena Camuffo, Luca Gorghetto, and Leonardo Badia. *Moving drones for wireless coverage in a three-dimensional grid analyzed via game theory*. In 2021 IEEE Asia Pacific Conference on Circuit and Systems (APCCAS), 2021.
- **J1** Elena Camuffo, Umberto Michieli, and Simone Milani. *Learning from mistakes: Self- regularizing hierarchical representations in point cloud semantic segmentation*. Transactions on Multimedia, 2023.
- **J2** Daniele Mari, Elena Camuffo, and Simone Milani. *Cactus: Content-aware compression and transmission using semantics for automotive lidar data*. Sensors, 23, 2023.
- **J3** Elena Camuffo, Daniele Mari, and Simone Milani. *Recent advancements in learning algorithms for point clouds: An updated overview*. Sensors, 22, 2022.

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