Elena **Camuffo**

Vision/AI Engineer - PhD Student

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 data processing and XR.

Personal

Italian Girl, born 15 may 1997
Sports: Tennis, Climbing & Ski
Arts: Painting & Drawing

Areas of specialization

AI foundation problems • Semantic Scene Understanding • 3D Data Processing • Extended Reality

Soft Skills

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

Work Experience

Apr 23–Pres — **Intern AI 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 paper and 1 submitted, filed 1 patent.

Sep 19–Pres — **Teaching Assistant**
University of Padova · Padova, IT
M.Sc. courses: 3D Augmented 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 Depat. of Pharmaceutical Sciences (UniPD).

Education

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

Sep 16–Sep 19 — **B.Sc. in Information Engineering**
University of Padova · Italy
Grade: 102/110 Thesis: "Mixed Reality Applications in Medical Therapy", Collaboration with Hannah Luxenberg Tono, Tactic Srl and Dreamship Studios Srl (USA).

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 Campagnolo Devid*, Camuffo Elena*, Michieli Umberto, Borin Paolo, Milani Simone, and Giordano Andrea. *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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