# 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 1 paper and 2 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 – GTTI2022, ICVSS2022, GTTI2021, AIRONE2021.

**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 | ● ○ ○ ○ |
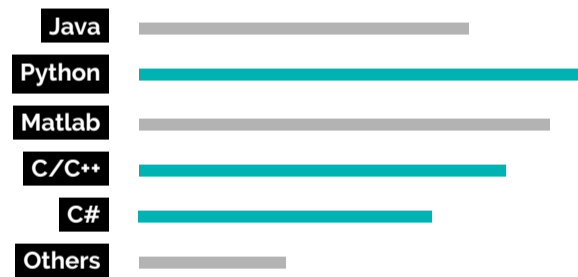
## CERTIFICATES & GRANTS

**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, 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.

**C2** 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.

**C3** 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.

**C4** 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.

**C5** 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** Francesco Barbato, Elena Camuffo, Simone Milani, and Pietro Zanuttigh. *Continual road- scene semantic segmentation via feature-aligned symmetric multi-modal network*. arXiv preprint arXiv:2308.04702, 2023.

**J3** Daniele Mari, Elena Camuffo, and Simone Milani. *Cactus: Content-aware compression and transmission using semantics for automotive lidar data*. Sensors, 23, 2023.

**J4** 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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