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Date of birth: 15 May 1997

Elena Camuffo

Research experience in AI foundation problems and 2D/3D data processing for scene understanding acquired during my PhD and PostDoc. Skills for the development of efficient solutions were raised during my internship at Samsung Research. My achievements include publications in top international conferences and journals, work as a teaching assistant, and supervision of my MSc thesis.

Last Update: February 8, 2025.

Work Experience

- Sep. 2024 – **PostDoctoral Research Scientist**, *University of Padova*, Italy
Pres. Research topic: "3D Vision, Rendering, Generative AI"
○ Supervision of PhD and MSc Students.
○ International collaborations with Universities (e.g., Politecnico di Torino) and Companies (e.g., Samsung Research UK) on research projects.
- Apr. 2023 – **Intern AI Researcher**, *Samsung Research*, UK
Apr. 2024 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 and filed 1 patent.
- Sep. 2019 – **Teaching Assistant**, *University of Padova*, Italy
Sep. 2024 ○ 3D Augmented Reality (A.Y. 20/21, 21/22, 22/23, 23/24) MSc course.
○ Digital Forensics (A.Y. 20/21) MSc course.
○ Digital and Interactive Multimedia (A.Y. 21/22) MSc course.
○ Usability and User Experience (A.Y. 21/22) MSc course.
- Sep. 2022 – **Unity3D C# Developer**, *Uqido Srl*, Padova, Italy
Dec. 2022 Development of an interactive VR experience for Oculus Quest 2 platform. Collaboration with the Department of Pharmaceutical Sciences (University of Padova).

Education

- Sep. 2024 – **Master in Computer Graphics**, *BigRock Institute of Magic Technologies*, Italy
Feb. 2025 Intensive course in Digital Art, Animation and Special Effects for Cinema. Autodesk Certified. Software: Maya, Unreal Engine, ZBrush, Substance Painter, Marvelous Designer, Photoshop, Nuke.
- Sep. 2021 – **PhD in Information Engineering**, *University of Padova*, Italy
Sep. 2024 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 PhD students.
○ Mentored BSc and MSc final projects.
Seasonal Schools, *M2L-24, VS3-24, GTTI-22, ICVSS-22, GTTI-21, AIRONE-21*.
- Sep. 2019 – **MSc in Telecommunication Engineering**, *University of Padova*, Italy
Sep. 2021 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. 2016 – **BSc in Information Engineering**, *University of Padova*, Italy, Grade: 102/110
Sep. 2019 Thesis: "Mixed Reality Applications in Medical Therapy", Collaboration with Hannah Luxenberg Tono, Tactic Srl and Dreamship Studios Srl (USA).
Sep. 2011 – **High School**, *Liceo Scientifico Berto*, Italy, Grade: 93/100
Sep. 2016
 - Selected to be part of the Olympics Maths team – Admission to the national final phase competition, Cesenatico, 2015.
 - Part of the Theatre group – Selected for an exchange program with Vibo Valentia High School.
 - Awarded scholarship grant, ARCA, 2016.

Academic Experience

Reviewer Activity

- Journals*: IEEE TIP, TMM, TITS, RAL, WWW, MMSys.
- Conferences*: IEEE ICASSP, ICIP, IROS, ICME, IJCNN.

Invited Talks

- 02/24 FFT-based selection and optimization of statistics for robust recognition of severely corrupted images. - Samsung Research Institute, Staines Upon Thames, 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 PhD course, Univ. of Padova.
- 12/22 Learning Strategies for 3D semantic segmentation - DEITalks series, Univ. of Padova.
- 01/22 Introduction to Extended Realty - IIS Veronese-Marconi of Chioggia.

Projects and Awards

Awards

- 2021 Best student presentation award at APCCAS International Conference.
2021 Selected and awarded scholarship grant from the organizers of Seasonal School AIRONE, Scuola Superiore S.Anna, Pisa.

Projects

- 2023 Samsung Promotional Video – Selected as actress for promotional video.
2022 DEITalks – Organizer and Speaker, University of Padova invited talk series.
2020 It's girls' DEI – Organizer and Speaker, University of Padova promotional video.

Skills

Computer Skills

- Programming**: Python, MATLAB, C#, C/C++ (also experience in Java, JavaScript, HTML, PostgreSQL).
- Libraries**: PyTorch, Tensorflow, Keras, Scikit-learn, Jupyter Notebooks, Pandas, OpenCV, OpenGL, ROS.
- Software development**: Bash, Batch, Git, Pycharm, VSCode.
- Computer Graphics**: Unity3D, Unreal Engine, Blender (also experience in ZBrush, Maya, Photoshop).
- Typesetting**: L^AT_EX.

Other Skills

- Soft Skills**: Public speaking, teamwork, mentoring and coaching, self-organization.
- Languages**: Italian (native), English (fluent, B2 Trinity College certification), French (basic).

Publications

Conferences

- [C1] Elena Camuffo, Umberto Michieli, Ji Joong Moon, Daehyun Kim, 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.

Journals

- [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.

* indicates equal contribution.

I hereby authorize the processing of the personal data contained in this CV in compliance with the Italian Personal Data Protection Code (Legislative Decree no. 196 of 30 June 2003).