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Date of birth: 15 May 1997

Elena Camuffo

Research and development experience in AI, ranging from scene understanding acquired during my Ph.D. and development of on-device efficient solutions at Samsung to Computer Graphics skills developed during my job experience at Uqido. My research achievements include 8+ research publications in international conferences and journals, 2+ master's thesis supervision.

Last Update: December 30, 2023.

Work Experience

Apr. 2023– Present — **Intern AI Researcher**, *Samsung Research*, 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.

Sep. 2019– Present — **Teaching Assistant**, *University of Padova*, Italy
- 3D Augmented Reality (A.Y. 20/21, 21/22, 22/23, 23/24) M.Sc. course.
- Digital Forensics (A.Y. 20/21) M.Sc. course.
- Digital and Interactive Multimedia (A.Y. 21/22) M.Sc. course.
- Usability and User Experience (A.Y. 21/22) M.Sc. course.

Jul.–Sep 19 / Mar.–Sep. 21 — **Research Intern**, *University of Padova*, Italy
Internship for both Bachelor's and Master's final thesis projects.

Sep. 2022– Dec. 2022 — **Unity3D C# Developer**, *Uquido Srl*, Padova, Italy
Development of an interactive VR experience for Oculus Quest 2 platform. Collaboration with the Department of Pharmaceutical Sciences (University of Padova).

Education

Sep. 2021 – Present — **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, AIRONE21.*

Sep. 2019 – Sep. 2021 — **M.Sc. in Telecommunication Engineering**, *University of Padova*, Italy
Grade: 110/110 summa cum laude
Thesis: "Curriculum and Contrastive learning in Point Cloud Semantic Segmentation", supervised by Prof. Simone Milani and Dr. Umberto Michieli.

Sep. 2016 – Sep. 2019 — **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).

Sep. 2011 – Sep. 2016	**High School**, *Liceo Scientifico Berto*, Italy, Grade: 93/100
	○ 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.
○ *Conferences:* IEEE ICASSP, ICIP.

Invited Talks
○ 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, 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 a fellowship 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, Unversity 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, Blender (also experience in ZBrush, Maya, Gimp, Photoshop).
○ **Typesetting:** LaTeX.

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. 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.

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]   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.

∗ 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).