Marianna Pizzo, PhD student

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Education

November 2022 - Present	**Ph.D. STUDENT IN COMPUTER SCIENCE** **University of Genoa, Italy** *Research Topic:* Interactive environments in eXtended Reality (XR). *Advisors:* Professor Manuela Chessa, Professor Fabio Solari. *Description:* The objective is to understand how to effectively integrate and leverage various technologies and algorithms (especially from Computer Vision) in order to develop a dynamic Extended Reality (XR) system where real and virtual elements coexist coherently. In particular, the final goal is a coherent XR environment where the user would be able to perform real-time interactions that are currently impossible to perform in traditional pure VR environments. The XR system to be developed should be simple, low-cost, and as independent as possible from the hardware and proprietary technology. Moreover, the system should allow the user to behave and interact naturally, i.e., similar to the corresponding real situations, from a cognitive and physical standpoint. So, during the development, it would also be important to evaluate the user's experience and interaction from both a quantitative and a qualitative standpoint.
September 2019 - March 2022	**MASTER'S DEGREE IN BIOENGINEERING** **University of Genoa, Italy** *Thesis title:* Development of a system for interaction with contextualized real objects in Mixed Reality Environments. *Supervisors:* Professor Manuela Chessa, Professor Fabio Solari. *Final degree mark:* 110/110 cum laude and recommendation for publication.
September 2016 - September 2019	**BACHELOR'S DEGREE IN BIOMEDICAL ENGINEERING** **University of Genoa, Italy** *Thesis title:* Assessment of cybersickness in immersive Virtual Reality environments. *Supervisor:* Professor Fabio Solari. *Final degree mark:* 105/110
2011 - 2016	**SCIENTIFIC HIGH SCHOOL DIPLOMA** **Liceo Scientifico G.P. Vieusseux, Imperia, Italy** *Final mark:* 87/100

Research Experience

July 2023	Attended the *International Computer Vision Summer School, from Perception to Action*, hosted by the IPLAB in Scicli (Italy). *Description:* This school offered a distinguished program focused on the science and technology of enabling machines to perceive and interpret visual data. Led by world-renowned experts from academia and industry, the school delved into cutting-edge research; in particular, it focused on recognising objects, spatial layout, and shape recovery from visual data, alongside the integration of machine learning. Moreover, the school facilitated networking with fellow researchers in a collaborative environment.
May 2023	Organized, together with the other PhD students, the 4th edition of the *Computer Science Workshop*, hosted by the DIBRIS Department of the University of Genoa.
April 2023	Attended a three-day *Crash Course in Geometric Computer Vision* held by Professor Andrea Fusiello, from the University of Udine.
March 2023	Attended the *Social XR Spring School*, hosted by the DIS Lab, at the Centrum Wiskunde & Informatica in Amsterdam (Netherlands). *Description:* This multidisciplinary school allows the attendants to gain a deeper understanding of the underlying mechanics of immersive experiences, such as human perception and user-centered delivery systems. The program also targets rendering and interaction, including the development of new immersive and multi-sensory experiences. In the end, also the assessment and evaluation of human experiences are addressed.
December 2022	Local Arrangement Chair in the *Fifth IEEE International Conference on Image Processing, Applications and Systems (IPAS'22)*.
October 2022	Collaborated with Professor Patrizia Boccacci on the SkinSkan project, which is coordinated by INFN.
June 2022	Attended the *Computer Science Workshop*, organized by PhD students in Computer Science of the University of Genoa, and also took part in the poster session.
May 2022 - October 2022	Postgraduate researcher at PILab, University of Genoa, Italy. *Research Theme:* Techniques for developing Mixed Reality environments. *Scientific coordinator:* Professor Manuela Chessa.

Oral Presentations

July 2023	Presented a poster during the *International Computer Vision Summer School* in Scicli (Italy).
March 2023	Presented a poster during the *Social XR Spring School* at the Centrum Wiskunde & Informatica in Amsterdam (Netherlands).
December 2022	Presented a publication at the the *Fifth IEEE International Image Processing, Applications and Systems Conference (IPAS'22)*.
February 2022	Presented a poster during the on-line poster session held at the *6th International Conference on Human Computer Interaction Theory and Applications*.
February 2021	Attended as a speaker a webinar organized by *Aliseo*, entitled *"Progettiamoci il futuro: professione ingegnere clinico"*, to talk about the MSc program in Bioengineering.

Didactic Experiences

2023-present	Co-advisor of a Bachelor's Thesis in Biomedical Engineering entitled *"A serious game for the assessment of the figural fluency"*, University of Genoa.

Didactic Experiences (continued)

September 2022 - June 2023 ◖ Teaching assistance for the Bachelor in Biomedical Engineering University course *"Programming Fundamentals"*, University of Genoa.

2022 ◖ Co-advisor of a Bachelor's Thesis in Biomedical Engineering entitled *"Development of an Immersive Virtual Reality Environment to Execute Cognitive Exercises"*, University of Genoa.

Research Publications

1 Chessa, M., Delzanno, G., Giovannetti, D., Guerrini, G., Manini, F., Miggiano, D., **Pizzo, M.**, & Viola, E. (2023). Work-in-progress—icoding: Immersive coding in unity. *Immersive Learning Research-Academic*, 78–92.

2 Hussain, R., **Pizzo, M.**, Ballestin, G., Chessa, M., Solari, F. (2022). Experimental validation of photogrammetry based 3d reconstruction software. *2022 IEEE 5th International Conference on Image Processing Applications and Systems (IPAS)*, 1–6.

3 Paoletti, B., **Pizzo, M.**, Viola, E., Solari, F., Chessa, M. (2022). Enhanced interaction in mixed reality environments. *Poster at the 17th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications (VISIGRAPP)*, 87.

Skills

Languages ◖ English (fluent), French (basic), Italian (native).

Coding ◖ C, C++, C#, MATLAB, Simulink, Arduino, SQL, LaTeX.

Software ◖ Unity, Blender, Vuforia, MeshLab, CloudCompare, Git, Skanect, Autodesk ReCap Photo, COLMAP, Metashape, 3DF Zephyr, Meshroom, Regard3D, 3D Slicer, Microsoft Power Point, Microsoft Word, Microsoft Excel, OBS Studio.

Field of Expertise ◖ Virtual/Mixed Reality (XR application development, UX paradigms, perception and interaction), Computer Vision (3D reconstruction, Tracking, Object detection), Sensor fusion.

Certificates ◖ Image Processing Onramp, MATLAB Onramp.

Other skills ◖ Authorization to use semi-automatic defibrillator in out-of-hospital environment, (obtained in January 2020), driving licence.

Projects

2021 ◖ Attended a seminar held by Professor Ekaterina Prasolova-Førland, from NTNU's IMTELlab, and I presented her a demo of my Master's thesis work.

2020 ◖ University Project (as part of the course of Motor Control and Human Performance Assessment): I realized a wearable device for elderly home monitoring: it was developed using the Arduino IDE. The device has sensors to track body temperature and heart rate, and it detects any falls of the subject. If a problem is pointed out, the device, connected to WiFi, will send an email to the family doctor.

2019 ◖ University Project (part of the Analysis of Biomedical Data and Signals course): I realized two classifiers (Bayesian Naive and SVM) capable of recognising facial expression and sex of photographed subjects. The project was realized using MATLAB.