

Alessandro Simoni

PhD Student @ Department of Engineering “Enzo Ferrari”

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Summary

I'm a PhD student under the tutorship of Prof. Roberto Vezzani at the International Doctorate School in ICT (Unimore, Italy) with the following research topic: “Computer Vision and Artificial Intelligence for Collaborative Robotic Environments”.

My main interests are in Human-centric AI and Robotics exploiting deep learning and computer vision techniques applied to the 3D world. My research skills are related to 3D pose estimation of articulated objects and 3D object reconstruction through neural rendering techniques. I am also collaborating on a project related to the 3D reconstruction of vehicles through NeRF approaches.

Knowledge and computer skills

Programming languages Python (proficiency), C++, JavaScript

Libraries and Tools PyTorch, NumPy, OpenCV, PyCharm

Domains Deep Learning, 2D/3D Computer Vision, 3D Human/Robot Pose Estimation, 3D Reconstruction

Spoken languages Italian mothertongue, English C1 (certified ESOL Cambridge)

Working experiences

AlmageLab - University of Modena and Reggio Emilia

Research grant

Modena, Italy

July 2023 - (July 2024)

Supervisor: Prof. Roberto Vezzani

Project: “AI platform with digital twins of interacting robots and people”

AlmageLab - University of Modena and Reggio Emilia

Research grant

Modena, Italy

June 2022 - June 2023

Supervisor: Prof. Roberto Vezzani

Project: “Study of recent combinations of CNN and Vision Transformer architectures”

AlmageLab - University of Modena and Reggio Emilia

Research grant

Modena, Italy

May 2020 - May 2022

Supervisor: Prof. Roberto Vezzani

Project: “PREVUE - Prediction of Activities and Events by Vision in an Urban Environment”

AlmageLab - University of Modena and Reggio Emilia

Student internship for master's degree thesis

Modena, Italy

July 2019 - Feb. 2020

Supervisor: Prof. Rita Cucchiara

“Future urban scene generation: a deep learning approach for a 3D temporal vehicle reconstruction starting from monocular images”

Education

University of Modena and Reggio Emilia

PhD student - Curriculum “Computer engineering and science”

Modena, Italy

Nov. 2020 - (Mar. 2024)

Supervisor: Prof. Roberto Vezzani

University of Modena and Reggio Emilia

Master's degree in computer engineering

Modena, Italy

Sep. 2017 - Feb. 2020

• GPA: 27.806/30. Final grade: 108/110

University of Modena and Reggio Emilia

Bachelor's degree in computer engineering

Modena, Italy

Sep. 2013 - Feb. 2017

• GPA: 23.607/30. Final grade: 91/110

Certifications

First Certificate in English (FCE)

Grade A (Score 180, C1), University of Cambridge ESOL Examinations

Dec. 2020

Italian State certification exam for Engineer Profession

Association of Engineers

2021

4th Advanced Course on Data Science and Machine Learning (ACDL 2021)

Participation certificate with final exam

July 2021

16th International Computer Vision Summer School (ICVSS 2022)

Participation certificate with final exam

July 2022

ELLIS Summer School on Large-Scale AI for Research and Industry

Participation certificate with final project (NeRF-based camera optimization)

Sept. 2023

Additional information

Citizenship Italian, German

Travelling Passport, B license, own car

Selected publications

Complete list on [Google Scholar](#).

JOURNALS

Pattern Recognition Letters

A. D'Eusania, A. Simoni, S. Pini, G. Borghi, R. Vezzani, R. Cucchiara

“Depth-based 3D human pose refinement: Evaluating the refinet framework”

Mar. 2023

Informatics

A. D'Eusania, A. Simoni, S. Pini, G. Borghi, R. Vezzani, R. Cucchiara

“Multimodal hand gesture classification for the human-car interaction”

Aug. 2020

CONFERENCES

23rd International Conference on Image Analysis and Processing

D. Di Nucci, A. Simoni, M. Tomei, L. Ciuffreda, R. Vezzani, R. Cucchiara

“CarPatch: A Synthetic Benchmark for Radiance Field Evaluation on Vehicle Components”

Udine, Italy

11-15 Sept. 2023

35th International Conference on Intelligent Robots and Systems + RA-L

A. Simoni, S. Pini, G. Borghi, R. Vezzani

“Semi-Perspective Decoupled Heatmaps for 3D Robot Pose Estimation from Depth Maps”

Kyoto, Japan

Oct. 2022

9th International Conference on 3D Vision

A. Simoni, S. Pini, R. Vezzani, R. Cucchiara

“Multi-category mesh reconstruction from image collections”

Virtual, Online

1-3 Dec. 2021

16th VISIGRAPP

A. Simoni, A. D'Eusania, S. Pini, G. Borghi, R. Vezzani

“Improving car model classification through vehicle keypoint localization”

Virtual, Online

8-10 Feb. 2021

25th International Conference on Pattern Recognition

A. Simoni, L. Bergamini, A. Palazzi, S. Calderara, R. Cucchiara

“Future urban scene generation through vehicle synthesis”

Virtual, Online

10-15 Jan. 2021

8th International Conference on 3D Vision

A. D'Eusania, A. Simoni, S. Pini, G. Borghi, R. Vezzani, R. Cucchiara

“A transformer-based network for dynamic hand gesture recognition”

Virtual, Online

25-28 Nov. 2020

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