

Alessandro Simoni

PhD Student @ Department of Engineering “Enzo Ferrari”

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Summary

I am a PhD Student enrolled in the International Doctorate in ICT program at the AlmageLab research group of the University of Modena and Reggio Emilia (Italy), under the supervision of Prof. Roberto Vezzani. My PhD thesis defense is expected to be in March 2024. My research activities are focused on Computer Vision and Deep Learning applied to Collaborative Robotics scenarios, more precisely in topics like 3D Object Reconstruction and 3D Human/Robot Pose Estimation. Moreover, I'm actively involved in two projects in collaboration with two different companies related to 3D Human-Centric Scene Understanding in outdoor video surveillance scenarios and 3D Vehicle Reconstruction in real-world scenarios, respectively.

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

Supervisor: Prof. Roberto Vezzani

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

Modena, Italy

July 2023 - (July 2024)

AlmageLab - University of Modena and Reggio Emilia

Research grant

Supervisor: Prof. Roberto Vezzani

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

Modena, Italy

June 2022 - June 2023

AlmageLab - University of Modena and Reggio Emilia

Research grant

Supervisor: Prof. Roberto Vezzani

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

Modena, Italy

May 2020 - May 2022

AlmageLab - University of Modena and Reggio Emilia

Student internship for master's degree thesis

Supervisor: Prof. Rita Cucchiara

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

Modena, Italy

July 2019 - Feb. 2020

Education

University of Modena and Reggio Emilia

PhD student - Curriculum “Computer engineering and science”

Supervisor: Prof. Roberto Vezzani

Modena, Italy

Nov. 2020 - (Mar. 2024)

University of Modena and Reggio Emilia

Master's degree in computer engineering

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

Modena, Italy

Sep. 2017 - Feb. 2020

University of Modena and Reggio Emilia

Bachelor's degree in computer engineering

• GPA: 23.607/30. Final grade: 91/110

Modena, Italy

Sep. 2013 - Feb. 2017

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

Speaker at conferences

35th IEEE/RSJ International Conference on Intelligent Robots and Systems

Kyoto, Japan

21st International Conference on Image Analysis and Processing

Lecce, Italy

9th International Conference on 3D Vision

Virtual, Online

16th VISIGRAPP

Virtual, Online

25th International Conference on Pattern Recognition

Virtual, Online

Journals and conferences activities

2nd T-CAP 2022 Workshop at ICPR2022

Technical Program Committee

Montreal, Canada

21-25 Aug. 2022

1st T-CAP 2021 Workshop at ICIAP2021

Technical Program Committee

Lecce, Italy

23-27 Mag. 2022

16th VISIGRAPP

Session chair

Virtual, Online

8-10 Feb. 2021

Reviewing activities

IEEE International Conference on Robotics and Automation (ICRA)

IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)

IEEE International Conference on Pattern Recognition (ICPR)

IEEE Robotics and Automation Letters (RA-L)

Towards a Complete Analysis of People: From Face and Body to Clothes (T-CAP)

International Workshop and Challenge on People Analysis (WCPA)

Teaching activities

School in AI: Deep Learning, Vision and Language for Industry - first edition

Laboratory Lecturer - 3D Computer Vision

Modena, Italy

Feb. 2022

School in AI: Deep Learning, Vision and Language for Industry - second edition

Laboratory Lecturer - 3D Computer Vision

Modena, Italy

Sept. 2022

Thesis supervision

MSc Thesis (G. Doganieri)

“3D Multi-Person Pose Estimation and Skeleton tracking by a single RGB camera”

Feb. 2022

Publications

More info on [Google Scholar](#).

JOURNALS

Pattern Recognition Letters (PRL)

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

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

Mar. 2023

Computers & Graphics

A. Caputo, A. Giacchetti, S. Soso, D. Pintani, A. D'Eusanio, S. Pini, G. Borghi, A. Simoni, R. Vezzani, R. Cucchiara, et al.

“SHREC 2021: skeleton-based hand gesture recognition in the wild”

Oct. 2021

Informatics

A. D'Eusanio, 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

23-27 Oct. 2022

21st International Conference on Image Analysis And Processing

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

“Unsupervised detection of dynamic hand gestures from leap motion data”

Lecce, Italy

23-27 Mag. 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'Eusanio, S. Pini, G. Borghi, R. Vezzani

“Improving car model classification through vehicle keypoint localization”

Virtual, Online

8-10 Feb. 2021

16th VISIGRAPP

L. Bergamini, S. Pini, A. Simoni, R. Vezzani, S. Calderara, R. B. D'Eath, R. B. Fisher

“Extracting accurate long-term behavior changes from a large pig dataset”

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'Eusanio, 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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