Alessandro Simoni

PhD Student @ Department of Engineering "Enzo Ferrari"

Birth date (day/month/year): 27/09/1994

Address: Via Monsignor Luigi della Valle, 36, 41126, Modena, Italy

Contacts: (+39) 3348040595 | alle.simoni.as@gmail.com | alexj94.github.io

Summary

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

My main interest is in robotics and I would like to work in this research area exploiting deep learning and computer vision techniques applied to the 3D world.

Knowledge and computer skills

Programming languages	Python, C++, HTML, JavaScript
Libraries and Tools	PyTorch, NumPy, OpenCV, PyCharm
Domains	Deep Learning, Computer Vision, 3D Geometry
Spoken languages	Italian mothertongue, English C1 (certifed ESOL Cambridge)

Working experiences

AImageLab - University of Modena and Reggio Emilia

Modena, Italy

Research fellow — *May 2020 - Nov. 2020*

Supervisor: Prof. Roberto Vezzani

Research project: *"PREVUE - Prediction of Activities and Events by Vision in an Urban Environment"*

- Generation of new viewpoints through the prediction of 3D geometry and appearance in an urban environment.
- Study, analysis and design of algorithms to estimate the 3D geometry of a scene predicting new views of vehicles in urban scenarios.

AImageLab - University of Modena and Reggio Emilia

Modena, Italy

Student internship for master's degree thesis — *Jul. 2019 - Feb. 2020*

Supervisor: Prof. Rita Cucchiara

Thesis title:

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

- Study of modern architectures in the context of computer vision and artificial intelligence reading scientific papers
- Use of neural networks developed in PyTorch
- Use of 3D geometry for solving object reprojection problems from 3D to 2D

Education

University of Modena and Reggio Emilia

Modena, Italy

PhD student - Curriculum "Computer engineering and science" — *Nov. 2020 - ongoing*

Supervisor: Prof. Roberto Vezzani

University of Modena and Reggio Emilia

Modena, Italy

Master's degree in computer engineering — *Sep. 2017 - Feb. 2020*

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

University of Modena and Reggio Emilia

Modena, Italy

Bachelor's degree in computer engineering — *Sep. 2013 - Feb. 2017*

- GPA: 23.607/30. Final grade: 91/110

Classical high school "L.A. Muratori" *Modena, Italy*

Classical high school diploma *2008 - 2013*

- Final grade: 79/100

Certifications

First Certificate in English (FCE)

Grade A (Score 180), University of Cambridge ESOL Examinations *Dec. 2020*

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

Participation certificate with final exam *Jul. 2021*

16^{th} International Computer Vision Summer School (ICVSS 2022)

Participation certificate with final exam *Jul. 2022*

Teaching activities

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

Laboratory Lecturer - 3D Computer Vision *Feb. 2022*

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

Laboratory Lecturer - 3D Computer Vision *Sept. 2022*

Publications

Journals

IEEE Robotics and Automation Letters (RA-L)

A. Simoni, S. Pini, G. Borghi, R. Vezzani *Oct. 2022*

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

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. *Oct. 2021*

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

Informatics

A. D'Eusanio, A. Simoni, S. Pini, G. Borghi, R. Vezzani, R. Cucchiara *Aug. 2020*

"Multimodal hand gesture classification for the human-car interaction"

Conferences

21^{st} International Conference on Image Analysis And Processing *Lecce, Italy*

S. Pini, G. Borghi, A. D'Eusanio, A. Simoni, R. Vezzani *23-27 Mag. 2022*

"Unsupervised detection of dynamic hand gestures from leap motion data"

9^{th} International Conference on 3D Vision *Virtual, Online*

A. Simoni, S. Pini, R. Vezzani, R. Cucchiara *1-3 Dec. 2021*

"Multi-category mesh reconstruction from image collections"

16^{th} VISIGRAPP *Virtual, Online*

A. Simoni, A. D'Eusanio, S. Pini, G. Borghi, R. Vezzani *8-10 Feb. 2021*

"Improving car model classification through vehicle keypoint localization"

16^{th} VISIGRAPP *Virtual, Online*

L. Bergamini, S. Pini, A. Simoni, R. Vezzani, S. Calderara, R. B. D'Eath, R. B. Fisher *8-10 Feb. 2021*

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

25^{th} **International Conference on Pattern Recognition** *Virtual, Online*
A. Simoni, L. Bergamini, A. Palazzi, S. Calderara, R. Cucchiara *10-15 Jan. 2021*
"Future urban scene generation through vehicle synthesis"

8^{th} **International Conference on 3D Vision** *Virtual, Online*
A. D'Eusanio, A. Simoni, S. Pini, G. Borghi, R. Vezzani, R. Cucchiara *25-28 Nov. 2020*
"A transformer-based network for dynamic hand gesture recognition"

Attended conferences

21^{st} **International Conference on Image Analysis and Processing** *Lecce, Italy*

9^{th} **International Conference on 3D Vision** *Virtual, Online*

16^{th} **VISIGRAPP** *Virtual, Online*

25^{th} **International Conference on Pattern Recognition** *Virtual, Online*

Journals and conferences activities

2^{nd} **T-CAP 2022 Workshop at ICPR2022** *Montreal, Canada*
Technical Program Committee *21-25 Aug. 2022*

1^{st} **T-CAP 2021 Workshop at ICIAP2021** *Lecce, Italy*
Technical Program Committee *23-27 Mag. 2022*

16^{th} **VISIGRAPP** *Virtual, Online*
Session chair *8-10 Feb. 2021*

Reviewing activities

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)

Additional information

Citizenship Italian, German
Travelling Passport, B license, own car