

Simone Angarano

PHD STUDENT · MACHINE LEARNING FOR ROBOTICS

Politecnico di Torino, Turin, Italy
Interdepartmental Center for Service Robotics (PIC4SeR)

✉ Mail | 📄 Publications | 🌐 Website | 🐙 GitHub

Education

PhD in Electrical, Electronics, and Communications Engineering

POLITECNICO DI TORINO - INTERDEPARTMENTAL CENTER FOR SERVICE ROBOTICS (PIC4SeR)

Turin, Italy

11/2021 - present

- Project: Efficient Deep Learning models for Robot perception, control, and decision-making.
- Advisor: Prof. Marcello Chiaberge.

MS in Mechatronic Engineering (110/110 with honors)

POLITECNICO DI TORINO

Turin, Italy

10/2018 - 10/2020

- Thesis: Deep Learning Methodologies for Ultra-Wideband Ranging Error Compensation.
- Advisor: Prof. Marcello Chiaberge.

BS in Electronic Engineering (103/110)

POLITECNICO DI TORINO

Turin, Italy

10/2015 - 10/2018

- Final Project: FPGA Implementation of an End-to-end Digital Filter.
- Advisor: Prof. Maurizio Zamboni.

Research Experience

Research Fellow

POLITECNICO DI TORINO - INTERDEPARTMENTAL CENTER FOR SERVICE ROBOTICS (PIC4SeR)

Turin, Italy

11/2020 - 10/2021

- Project: Machine Learning for robot perception and navigation.
- Advisor: Prof. Marcello Chiaberge.

Publications

PUBLISHED

Angarano, S., Salvetti, F., Martini, M., & Chiaberge, M. (2023). Generative Adversarial Super-resolution at the Edge with Knowledge Distillation. *Engineering Applications of Artificial Intelligence*, 123, 106407.

Marchionna, L., Pugliese, G., Martini, M., **Angarano, S.**, Salvetti, F., & Chiaberge, M. (2023). Deep Instance Segmentation and Visual Servoing to Play Jenga with a Cost-Effective Robotic System. *Sensors*, 23(2), 752.

Salvetti, F., **Angarano, S.**, Martini, M., Cerrato, S., & Chiaberge, M. (2022). Waypoint Generation in Row-based Crops with Deep Learning and Contrastive Clustering. In *Machine Learning and Knowledge Discovery in Databases: European Conference, ECML PKDD 2022, Grenoble, France, September 19–23, 2022, Proceedings*. Springer International Publishing.

Mazzia, V., **Angarano, S.**, Salvetti, F., Angelini, F., & Chiaberge, M. (2022). Action Transformer: A Self-attention Model for Short-time Pose-based Human Action Recognition. *Pattern Recognition*, 124, 108487.

Martini, M., Cerrato, S., Salvetti, F., **Angarano, S.**, & Chiaberge, M. (2022). Position-Agnostic Autonomous Navigation in Vineyards with Deep Reinforcement Learning. In *2022 IEEE 18th International Conference on Automation Science and Engineering (CASE)* (pp. 477-484). IEEE.

Angarano, S., Salvetti, F., Mazzia, V., Fantin, G., Gandini, D., & Chiaberge, M. (2022). Ultra-Low-Power Range Error Mitigation for Ultra-Wideband Precise Localization. In *Science and Information Conference* (pp. 814-824). Springer, Cham.

Angarano, S., Mazzia, V., Salvetti, F., Fantin, G., & Chiaberge, M. (2021). Robust ultra-wideband range error mitigation with deep learning at the edge. *Engineering Applications of Artificial Intelligence*, 102, 104278.

UNDER REVIEW

Angarano, S., Martini, M., Navone, A., & Chiaberge, M. (2023). Domain Generalization for Crop Segmentation with Knowledge Distillation. arXiv preprint arXiv:2304.01029.

Navone, A., Martini, M., **Angarano, S.**, & Chiaberge, M. (2023). Online Learning of Wheel Odometry Correction for Mobile Robots with Attention-based Neural Network. arXiv preprint arXiv:2303.11725.

Angarano, S., Martini, M., Salvetti, F., Mazzia, V., & Chiaberge, M. (2022). Back-to-Bones: Rediscovering the Role of Backbones in Domain Generalization. arXiv preprint arXiv:2209.01121.

Presentations

CONFERENCES

ECML PKDD, 2022. Poster presentation “Waypoint Generation in Row-based Crops with Deep Learning and Contrastive Clustering”. Grenoble, France.

SAI Computing Conference, 2022. Oral presentation “Ultra-Low-Power Range Error Mitigation for Ultra-Wideband Precise Localization”. London, UK.

IRIM Conference, 2021. Poster presentation “Local Planners with Deep Reinforcement Learning for Indoor Autonomous Navigation”. Rome, Italy.

OTHER EVENTS

PhD Poster Day, 2022. Poster presentation “Efficient Deep Learning models for Robot perception, control, and decision-making”. Turin, Italy.

Data, AI, and Robotics @PoliTo, 2021. Poster presentation “AI@PIC4SeR”. Turin, Italy.

Teaching Experience

ACADEMIC

2022-2023	Laboratory Teaching Assistant and Examiner , Electronics Fundamentals and Applications.	<i>Politecnico di Torino</i>
2022-2023	Laboratory Teaching Assistant and Examiner , Electronic Systems for Mechatronics.	<i>Politecnico di Torino</i>
2017-2020	Teacher , Linear Algebra and Geometry Tutoring Course.	<i>Politecnico di Torino</i>
2016-2019	Teacher , Calculus Tutoring Course.	<i>Politecnico di Torino</i>

COMPANY

2022	Teacher , Machine Learning 101.	<i>2+ Consulting</i>
2022	Teacher , Machine Learning 101.	<i>4Marketing</i>

Mentoring

2022	Bee Detection and Counting with Deep Learning at the Edge , MS Thesis Tutor.	<i>PIC4SeR</i>
2022	Learning Odometric Error in Mobile Robots with Deep Learning , MS Thesis Tutor.	<i>PIC4SeR</i>
2022	Running Analysis with Multivariate Timeseries Regression , MS Thesis Tutor.	<i>PIC4SeR</i>
2022	Hand Gesture Recognition for Robotic Domestic Assistant , MS Thesis Tutor.	<i>PIC4SeR</i>
2022	Vineyard Segmentation with Deep Learning for 4.0 Agriculture , MS Thesis Tutor.	<i>PIC4SeR</i>
2021	Indoor Navigation with Low-power Vocal Assistant at the Edge , MS Thesis Tutor.	<i>PIC4SeR</i>
2021	Visual and Tactile Perception to Play Jenga with a Robotic Arm , MS Thesis Tutor.	<i>PIC4SeR</i>
2021	Face Recognition with Deep Learning for Service Robotics , MS Thesis Tutor.	<i>PIC4SeR</i>
2021	Deep Computer Vision at the Edge for Apple Counting , MS Thesis Tutor.	<i>PIC4SeR</i>
2021	Semantic Scene Segmentation for Indoor Robot Navigation , MS Thesis Tutor.	<i>PIC4SeR</i>

Grants

2020-2021	Graduate Research Fellow Grant , Politecnico di Torino.	€ 18,000
2016-2020	Tuition Fees Refund for Academic Merit , Politecnico di Torino.	€ 1,000
2014-2015	“SuperMedia” Scholarship , Italian National Social Security Institute.	€ 2,200

Additional Activities

INSTITUTIONAL ROLES

2021-2022	Department of Electronics and Telecommunications Council , <i>PhD Representative</i> .	<i>Politecnico di Torino</i>
2019-2020	Department of Electronics and Telecommunications Council , <i>Student Representative</i> .	<i>Politecnico di Torino</i>
2019-2020	Consortium of Leading Universities of Science and Technology for Education and Research (CLUSTER) , <i>Representative for Politecnico di Torino</i> .	<i>European Union</i>
2017-2019	Academic Senate , <i>Student Representative</i> .	<i>Politecnico di Torino</i>

VOLUNTEER WORK

2015-2020	Lavori in Corso Student Association , <i>Board Member</i> . Student representation, Welcoming and study help for freshmen, Cultural events, Social media management.	<i>Politecnico di Torino</i>
2015-2022	Il Cammino Association , <i>Volunteer</i> . Helping kids at risk of exclusion with their homework.	<i>Turin, Italy</i>
2014-2022	Meeting for Friendship amongst Peoples Foundation , <i>Volunteer</i> . Electrician, Catering assistant, Surveillant.	<i>Rimini, Italy</i>
2008-2022	Banco Alimentare Foundation , <i>Volunteer</i> . Recovery of surplus food in favor of charity organizations.	<i>Italy</i>