Pietro Pustina

Ph.D. student in Automatic Control · Control Engineer

Summary

I am Ph.D. student in Automatica, Bioengineering and Operations Research at the Department of Computer, Control and Management Engineering, Sapienza University of Rome.

My current research focuses on model-based control of continuum soft robots.

Education

Associate Researcher — *Delft, Netherlands*

Technical University of Delft — *Feb. 2023 - Now*

- **Research topic:** *Model-based control of continuum soft robots*
  Supervisor: Cosimo Della Santina

Visiting Researcher — *Abu Dhabi, United Arab Emirates*

Khalifa University — *Nov. 2022 - Dec.2022*

- **Research topic:** *Model-based control of continuum soft robots*
  Supervisor: Federico Renda

Ph.D. in Automatic Control, Bioengineering and Operations Research — *Rome, Italy*

Sapienza University of Rome — *Nov. 2021 - Now*

- **Research topic:** *Model-based control of continuum soft robots*
  Supervisors: Alessandro De Luca, Cosimo Della Santina

M.Sc. in Control Engineering , 110/110 summa cum laude (avg 30/30) — *Rome, Italy*

Sapienza University of Rome — *Sep. 2019 - Oct. 2021*

- **Thesis title:** *Feedback Control of Elastically Decoupled Underactuated Soft Robots*
  Tutors: Alessandro De Luca, Cosimo Della Santina

B.Sc. in Computer Engineering , 110/110 summa cum laude (avg 29.84/30) — *Rome, Italy*

Roma Tre University — *Oct. 2016 - Jul. 2019*

- **Thesis title:** *Sviluppo di un'interfaccia C/C++ per stampanti 3D*
  Tutor: Francesco Riganti Fulginei

Publications

Journals

[1] **P. Pustina**, P. Borja, C. Della Santina, and A. De Luca, "P-satI-D shape regulation of soft robots," *IEEE Robotics and Automation Let.*, vol. 8, no. 1, pp. 1–8, 2023. DOI: 10.1109/LRA.2022.3221304.

[2] **P. Pustina**, C. Della Santina, and A. De Luca, "Feedback regulation of elastically decoupled underactuated soft robots," *IEEE Robotics and Automation Let.*, vol. 7, no. 2, pp. 4512–4519, 2022. DOI: 10.1109/LRA.2022.3150829.

Conferences

[3] S. Drost, **P. Pustina**, F. Angelini, A. De Luca, G. Smit, and C. Della Santina, "Experimental validation of functional iterative learning control on a one-link flexible arm," in *Proc. of the 40th International Conference on Robotics and Automation, London, UK*, 2023, pp. -.

[4] **P. Pustina**, C. Della Santina, and A. De Luca, "Recursive inverse dynamics of flexible multi-body systems based on Kane equations," in *Proc. of the 3rd International Nonlinear Dynamics Conference, Rome, ITA*, 2023.

[5] M. Montagna, **P. Pustina**, and A. De Luca, "Regulation by iterative learning in continuum soft robots," in *Proc. of the 4th Italian Conference on Robotics and Intelligent Machines, Rome, ITA*, 2022, pp. -.

Work Experience

Front-end web developer — *Pescara, Italy*

Enry's Island — *Jun. 2019 - Sep. 2019*

Alarm installer — *Rome, Italy*

Sicurezza Attiva — *Jun. 2016 - Sep. 2019*

Honors & Awards

2023	**International Ph.D. mobility scholarship**	*Sapienza University of Rome*
2021	**1st place in the Student Honors Program in Control Engineering**	*Sapienza University of Rome*
2021	**International thesis scholarship**	*Sapienza University of Rome*
2019	**Wanted The Best scholarship**	*Sapienza University of Rome*
2019	**Lazio DiSco scholarship**	
2017	**Merith scholarship**	*Roma Tre University*

Presentations

<Recursive Inverse Dynamics of Flexible Multi-Body Systems Based on Kane Equations> — *Rome, Italy*
International Nonlinear Dynamics Conference (NoDyCon) 2023 — *June. 2023*

<P-satI-D Shape Regulation of Soft Robots> — *London, United Kingdom*
International Conference on Robotics and Automation (ICRA) 2023 — *May. 2023*

<Experimental Validation of Functional Iterative Learning Control on a One Link Flexible Arm> — *London, United Kingdom*
International Conference on Robotics and Automation (ICRA) 2023 — *May. 2023*

<Soft Robotics> — *Online*
Progettista Più — *January. 2023*

<Feedback Regulation of Elastically Decoupled Underactuated Soft Robots> — *Philadelphia, United States of America*
International Conference on Robotics and Automation (ICRA) 2022 — *May. 2022*

Service

Reviewing service

Sep. 2022 - Now	**IEEE Transactions on Robotics**
Mar. 2022 - Now	**IEEE Robotics and Automation Letters**
Jan. 2022 - Now	**Journal of Intelligent & Robotic Systems**

Course tutoring

A.A. 2022-2023	**Robotics II** , Master of Science in Control Engineering	*Sapienza University of Rome*
A.A. 2022-2023	**Robotics I** , Master of Science in Artificial Intelligence and Robotics	*Sapienza University of Rome*
A.A. 2021-2022	**Robotics II** , Master of Science in Artificial Intelligence and Robotics	*Sapienza University of Rome*

Competences

Programming

MATLAB, Simulink, C, Python, Java, Javascript
Familiar with: **C++, Julia, PHP, OCaml, SQL, C#**

Markup languages

Latex, HTML, CSS, XML, JSON, YAML

Operating systems

Debian GNU/Linux
Familiar with: **Windows 10**

Software, libraries and frameworks

Robot Operating System 2 (ROS2), LibreOffice, MQTT, Xamarin, Bootsrap, Eclipse, FreeNAS

CAD modeling

Familiar with: **Fusion 360**

Languages

Italian (mother tongue)
English (fluent)