

Sergio Picella — Curriculum Vitae

 Sergio Picella  picella@amolf.nl  sergiopicella.com

I'm a PhD student in the Soft Robotic Matter Group at AMOLF and the Dynamics and Control at TU Eindhoven, with a background in Physics. **My research focuses on the control, energy and actuation autonomy of (electronics-free) soft robots.**

Publications

Published.....

- **Pneumatic coding blocks enable programmability of electronics-free fluidic soft robots**
[Picella S.](#), van Riet, C.M., Overvelde, J.T.B. 2024
Science Advances
- **A Retrofit Sensing Strategy for Soft Fluidic Robots**
Zou, S., [Picella S.](#), de Vries, J. Kortman, V.G., Sakes, A., Overvelde, J.T.B. 2024
Nature Communication
- **Robust Phototaxis by Harnessing Implicit Communication in Modular Soft Robotic Systems**
Schomaker, H.A.H., [Picella S.](#), Küng Garcia, A., van Laake, L.C., Overvelde, J.T.B. 2024
Advanced Functional Materials

Submitted.....

- **Regulating airflow using hybrid LCN for soft pneumatic robots**, Kurt, E., Golestani, Y.M., Bampoutsis, E., [Picella S.](#), Selinger, R.L.B., Overvelde, J.T.B., Liu, D.

In Preparation.....

- **Harvesting Environmental Circadian Oscillations for Energy Autonomy in Soft Robots**, [Picella S.](#), Comoretto, A., Verkaamp, O., Overvelde, J.T.B.
- **From Marionettes to Robots: on the Design of Soft Robots**, [Picella S.](#), Overvelde, J.T.B.
- **Explicit and Implicit Coupling: Modelling and Designing Interactions between Oscillators and their Environment**, [Picella S.](#), Comoretto, A., Overvelde, J.T.B.

Education

- **PhD in Soft Robotic Matter Group** 2021-2025
AMOLF (Amsterdam, NL) and Dynamics and Control (Eindhoven, NL)
Supervisor: *dr. ir. J.T.B. Overvelde*
- **MSc in Experimental Physics** Utrecht, NL 2019-2021
Utrecht University
Thesis: *Distributed Learning of Emergent Behaviour in 2D Robotic Matter*
Supervisors: prof. dr. ir. Marjolein Dijkstra, dr. Laura Fillon, dr. ir. J.T.B. Overvelde

- **BSc in Physics** **Bari, IT**
Università degli Studi di Bari "Aldo Moro" 2013-2017
 Thesis: *Electrolyte Gated Organic Field Effect Transistor: biosensing applications*
 Supervisor: prof. Gaetano Scamarcio

Demonstrators

- **Electronics-free control, powering and actuation of sustainable, electronics-free shading systems for façade systems**
 in collaboration with AIRSHADE 2024-
- **Haptic Feedback enabled by proprioception of pneumatic gripper**
 in collaboration with in collaboration with Shibo Zou (AMOLF), Femke van Beek (TU Eindhoven), Ali Sadeghi (University of Twente) 2023

Teaching

- **Utrecht University** **Utrecht, NL**
Guest Lecture at Master Course Introduction to Complex Systems 2024
- **TU Eindhoven** **Eindhoven, NL**
Guest Lecture at Master Course Advanced Materials for Soft Robotics 2023-2024
- **University of Amsterdam** **Amsterdam, NL**
Seminar for Advanced Matter Energy Physics (AMEP) 2023
- **TU Eindhoven** **Eindhoven, NL**
Supervising 5 Bachelor theses 2022-2024
- **AMOLF** **Amsterdam, NL**
Supervising 2 Master theses 2022-2024

Conferences

Oral Presentations.....

- **From Marionette systems to Autonomous (Soft) Robots** **Oslo, NO**
Picella, S., van Riet, C. M., Comoretto A., Verkaamp, O., Overvelde, J.T.B. 2024
Workshop on Interplay of Fluids and Soft Materials. Invited Talk
- **Endowing soft robots with counting capabilities...and more!** **Las Vegas, US**
Picella S., van Riet, C. M., Overvelde, J.T.B. 2023
APS March Meeting
- **Biosensing through Electrolyte Gated Organic Field Effect Transistors** **Rende, IT**
Scamarcio, G., Picella S. 2018
Italian Physics Society Meeting

Poster Presentations.....

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|----------------------------------------------------------------------------------|----------------------|
| Thermopneumatic Energy Harvesting through circadian Oscillations | Leuven, BE |
| ○ <i>Picella S., Comoretto A., Verkaamp, O., Overvelde, J.T.B.</i> | 2024 |
| <i>PhD Workshop</i> | |
| Fluidic Coding for Soft Robots | Eindhoven, NL |
| ○ <i>Picella S., van Riet, C. M., Overvelde, J.T.B.</i> | 2024 |
| <i>Dutch Soft Robotic Meeting</i> | |
| Enabling High-level programmability in Pneumatic Soft Robots | Ventura, US |
| ○ <i>Picella S., van Riet, C. M., Overvelde, J.T.B.</i> | 2024 |
| <i>GRS/GRC on Physically and Computationally Intelligent Behaviour in Robots</i> | |
| Towards emergent behavior in modular soft robots | Eindhoven, NL |
| ○ <i>Picella S., Overvelde, J.T.B.</i> | 2022 |
| <i>ICSM Annual Symposium</i> | |
| Control Through Limit Cycles in Out-of-Equilibrium Soft Robots | Eindhoven, NL |
| ○ <i>Picella S., Overvelde, J.T.B.</i> | 2022 |
| <i>ICSM Annual Symposium</i> | |

Technical Skills

- **Languages:** English (L2), French (L2), Italian (L1)
- **Coding Languages:** Python, C, MATLAB, Mathematica Javascript, HTML
- **Fabrication:** Fabrication: Silicone Casting, Mold Design, 3D Printing

Outreach and Extra-Curricular Activities

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| Pint of Science | Utrecht, NL |
| ○ <i>Event Manager (2023-2024), Communication Manager (2025)</i> | 2023-2025 |
| AMOLF Open Day | Amsterdam, NL |
| ○ <i>Outreach</i> | 2023-2024 |
| Physics with Industry Workshop (PWI) | Leiden, NL |
| ○ <i>with Tata Steel RD</i> | 2022 |
| Monitoring and classification of shallow water biomes | Bari, IT |
| ○ <i>Independent open source project</i> | 2021- |
| Italian Association of Physics Students (AISF) | Bari, IT |
| ○ <i>Vice-president</i> | 2019-2020 |
| Italian Association of Physics Students (AISF) | Bari, IT |
| ○ <i>National Coordinator for local committees</i> | 2018-2020 |
| Italian Association of Physics Students (AISF) | Bari, IT |
| ○ <i>Organising Committee for the National Meeting</i> | 2017 |

- **European Researcher Night**
Coordinator of Outreach Activities and Volunteers

Bari, IT
2015-2019

Volunteering

- **Language Cafe**
Host for Weekly Language Exchange Events

Utrecht, NL
2020-

- **Italian Language Tutor**
Conversations for linguistic tandem

Utrecht, NL
2020-

- **Italian Civil Protection**
First Aid Emergency during 2016 Central Italy Earthquake Emergency

Amatrice, IT
2016

- **Italian Civil Protection**
Emergency service on Ambulances

Bari, IT
2014-2017