

PERSONAL INFORMATION

Ana Kochovski



POSITION APPLIED FOR

Post-graduate research grant (*borsa di ricerca post-lauream*): Realization of an Additively Manufactured Robotic Wrist, DIME, University of Genova

RESEARCH INTERESTS

My research lies at the intersection of compliant mechanisms, origami-inspired design and reconfigurable robotic systems. I study how geometry, material distribution, and structural compliance can be exploited to embed functionality into a structure, reducing mechanical complexity while enabling adaptation. My work combines experimental characterization, computational design automation, additive manufacturing, and kinematic modeling to build folding mechanisms whose functionality emerges from their physical design. I am particularly interested in shape-reconfigurable robots, embodied mechanical intelligence, and deployable systems for challenging and extreme environments, including space and underwater exploration.

WORK EXPERIENCE

Nov 2023 – Present

Doctoral Researcher

Italian Institute of Technology (IIT) & University of Genova, Genova (Italy)

- Develop origami-inspired compliant mechanisms and robots via multi-material AM, spanning experimental characterization of compliant folding hinges, a parametric design tool Origami-Matic that converts zero-thickness origami models into thick-panel, fabrication-ready flat patterns, and kinematic modeling with compliance-induced motion compensation.
- Currently developing a shape-reconfigurable origami walking robot that morphs its body to navigate environmental constraints (e.g. narrow passages).

Jul 2025 – Dec 2025

Visiting PhD Researcher

Delft University of Technology (TU Delft), Delft (The Netherlands)

- Investigated analytical and numerical modeling approaches for compliant folding mechanisms toward performance prediction, kinematic behavior, and geometry optimization.

Jun 2023 – Sep 2023

Visiting Researcher

Delft University of Technology (TU Delft), Delft (The Netherlands)

- Investigated shark skin inspired approaches to drag reduction through a comprehensive literature review and experimental characterization of live shark skin stiffness for the development of bio-inspired lattice structures.

Feb 2023 – Jun 2023

MSc Thesis Researcher

Delft University of Technology (TU Delft), Delft (The Netherlands)

- Developed analytical and data-driven models of a tunable-stiffness soft robotic system, including design optimization, and reviewed and proposed control strategies.

2019 – 2020

Research Project Member

Faculty of Mechanical Engineering, Ss. Cyril and Methodius University, Skopje (North Macedonia)

- Contributed to the design and prototyping of a smart tracked robotic vehicle equipped with origami-inspired SMA-actuated soft grippers, along with kinematic modeling of the grippers.

2019 – 2021 Demonstrator (Undergraduate Teaching Student)

Faculty of Mechanical Engineering, Ss. Cyril and Methodius University, Skopje (North Macedonia)

Courses: Mechanics I–II, Engineering Materials, Strength of Materials

EDUCATION AND TRAINING

Nov 2023 – Present PhD in Mechanical, Energy and Management Engineering

Italian Institute of Technology (IIT) & University of Genova, Genova (Italy)

Supervisors: Prof. Giovanni Berselli, Dr. Alberto Parmiggiani

2022 – 2023 MSc, Mobile, Autonomous and Robotic Systems

ENSE3, Grenoble INP, Université Grenoble Alpes, Grenoble (France)

Master in Sciences, Technologies, Health, mention Signal and Image Processing

Final grade: 16.52/20 (mention Très Bien)

Thesis (conducted at TU Delft): *Modeling and control of an energy-efficient tunable-stiffness soft robot*

2018 – 2022 BSc, Mechanical Engineering (Mechatronics)

Faculty of Mechanical Engineering, Ss. Cyril and Methodius University, Skopje (North Macedonia)

4-year programme, 240 ECTS. Final grade: 9.97/10

Thesis: *Piezoelectric energy harvesting from mechanical vibrations*

PERSONAL SKILLS

Mother tongue Macedonian

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1
IELTS Academic, overall band 7.0 (C1), 2021					
Italian	B2	B2	B2	B2	B2
CILS DUE-B2, Università per Stranieri di Siena, 2018					
French	B1	B1	B1	B1	B1
DELF B1, France Éducation International (CIEP), 2017					
Serbian					

Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user
[Common European Framework of Reference for Languages](https://european-council.europa.eu/media/146706/EN/1/Content/Common_European_Framework_of_Reference_for_Languages.pdf)

Digital skills **CAD & parametric design:** SolidWorks, Creo Parametric, Rhino / Grasshopper
Modeling & simulation: MATLAB / Simulink, COMSOL
Programming: Python, MATLAB
Prototyping & control: Arduino, LabVIEW

Job-related skills **Fabrication:** Multi-material extrusion additive manufacturing

ADDITIONAL INFORMATION

Publications **Peer-reviewed journal articles**

- **Kochovski, A.**, Berselli, G., & Parmiggiani, A. (2026). OrigaMatic: A Computational Workflow for Multi-Material Design Bridging Thick-Panel Origami and Additive Manufacturing. *ASME Journal of Mechanisms and Robotics*, 18(2), 020902.
- **Kochovski, A.**, Jovanova, J., Berselli, G., & Parmiggiani, A. (2026). OriDelta: Design, Fabrication, and Kinematic Validation of an Origami-Inspired Delta Manipulator. *IEEE/ASME Transactions on Mechatronics* (early access).
- Baeten, S., **Kochovski, A.**, Jovanova, J., & Sakes, A. (2024). Characterization of Shark Skin Properties and Biomimetic Replication. *Bioinspiration & Biomimetics*, 19(5).

Under review

- **Kochovski, A.**, Berselli, G., & Parmiggiani, A. Mechanical Characterization of Additively Manufactured Multi-Material Compliant Flexural Hinges for Origami-Inspired Mechanisms.

- Conferences**
- Unconventional Robotics Symposium (URS), Poster presentation and flash talk, Delft, The Netherlands, September 2026
 - IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM), TMECH/AIM Focused Section, Paper presentation, Genova, Italy, July 2026
 - ASME IDETC/CIE, Mechanisms and Robotics (MR) Conference, Paper presentation, Anaheim, CA, USA, August 2025
 - Human Friendly Robotics Workshop, Workshop presentation, Capri, Italy, June 2025
 - Research and Education in Mechanical Engineering and Mechatronics for Building Engineering Resources Conference (RE-MEMBER), Extended abstract presentation, Skopje, North Macedonia, September 2024
 - Student Conference on Energy Efficiency and Sustainable Development (SCEESD), Conference paper presentation, Skopje, North Macedonia, December 2021

- Service**
- Session Chair and Co-Chair (two technical sessions), IEEE/ASME AIM 2026, Genova, Italy, July 2026
 - Organizing Committee Member, European Robotics Forum (ERF) 2024, Rimini, Italy, March 2024