europass

Curriculum vitae

PERSONAL INFORMATION Mario Baggetta

✉ mario.baggetta@unige.it

WORK EXPERIENCE

November 2020 – Present **Research Assistant - PhD candidate**

University of Genova, DIME, Genova, Italy
- Main research topics:
  - Underactuated robotic hands
  - Analysis/design/optimization of compliant mechanisms and flexible components
  - Structural optimizations
- Teaching Activities:
  - Assistant Instructor in the course "Technical Drawing" (2022, BSc in Mechanical Engineering)
  - Assistant Instructor in the course "Reverse engineering for additive manufacturing" (2021,2022, MSc in Mechanical Engineering)
  - Assistant Instructor in the course "Design of Automatic Machinery" (2021, MSc in Mechanical Engineering)
  - Assistant Instructor in the course "Technical Drawing" (2021, BSc in Nautical Engineering)
  - Member of the examination board for "Design of Automatic Machinery" (MSc in Mechanical Engineering), "Mechanics of Machines" (BSc in Mechanical Engineering) and "Technical Drawing" (BSc in Naval Architecture and Marine Engineering, BSc in Nautical Engineering, BSc in Mechanical Engineering)

June 2019 – October 2020 **Research Fellow**

University of Genova, DIME, Genova, Italy
- Main research topics:
  - Multi-Flexible body dynamics
  - Non-linear FEA
  - Mechatronics Systems control
- Consulting Activities for Ansaldo Energia:
  - Factory 4.0
  - Advanced simulation of assembly operations
  - FEA simulation of heavy lifting operations

EDUCATION AND TRAINING

2020–Present **PhD in Mechanical Engineering**

University of Genova, DIME, Genova, Italy
Curriculum "Mechanical Measures and Materials", XXXVI CYCLE

March 2019 **Master of Science in Mechanical Engineering, LM-33**

University of Genova, DIME, Genova, Italy
Curriculum "Design and Production"

December 2016 **Bachelor of Science in Mechanical Engineering, L-9**

University of Genova, DIME, Genova, Italy

PROJECTS

2023 – Present ### EU project Fit4MedRob

Fit for Medical Robotics (MUR (PNRR))
– Budget: 1.8 m€

2023 – Present ### EU project SMERF

Preparing companies for a greener future
– Budget: 2.49 m€

2022 – Present ### EU project IntelliMan

AI-Powered Manipulation System for Advanced Robotic Service, Manufacturing and Prosthetics
– Budget: 4.5 m€

2019 – 2022 ### Lighthouse Plant

Ansaldo Energia, Genova, Italy
Advanced simulation of assembly and manipulation operations in Factory 4.0.
– Budget: 14 m€

REVIEWER ACTIVITY

Reviewer for the journals:
– Transactions on Mechatronics (IEEE)
– Mechanism and Machine Theory
– Robotics and Automation Letters
– IEEE Access
– Mechanical Sciences
– Mechatronics

PUBLICATIONS

Journal
– **Baggetta, M.**, Palli, G., Melchiorri, C., Berselli, G. (2023). A Monolith Cable-Driven Compliant Wrist for Prosthetic Arms. IEEE/ASME Transactions on Mechatronics, UNDER REVIEW.
– Ottonello, E., **Baggetta, M.**, Berselli, G., Parmiggiani, A. (2023). Design and Validation of a Push-Latch Gripper Made in Additive Manufacturing. IEEE/ASME Transactions on Mechatronics, ACCEPTED.
– Gattino, C., Ottonello, E., **Baggetta, M.**, Razzoli, R., Stecki, J., & Berselli, G. (2023). Application of AI failure identification techniques in condition monitoring using wavelet analysis. The International Journal of Advanced Manufacturing Technology, 1-14.
– **Baggetta, M.**, Berselli, G., Palli, G., & Melchiorri, C. (2022). Design, modeling, and control of a variable stiffness elbow joint. The International Journal of Advanced Manufacturing Technology, 122(11-12), 4437-4451.
– Verotti, M., Berselli, G., Bruzzone, L., **Baggetta, M.**, Fanghella, P. "Design, Simulation and Testing of an Isotropic Compliant Mechanism". Precision Engineering, 2021, 72.
– Bilancia, P., **Baggetta, M.**, Hao, G., Berselli, G. "A variable section beams based Bi-BCM formulation for the kinetostatic analysis of cross-axis flexural pivots". International Journal of Mechanical Sciences,2021, 205.
– Bruzzone, L., **Baggetta, M.**, & Fanghella, P. (2021). Fractional-Order PII1/2DD1/2 control: Theoretical aspects and application to a mechatronic axis. Applied Sciences, 11(8), 3631.
– Bilancia, P., **Baggetta, M.**, Berselli, G., Bruzzone, L., & Fanghella, P. (2021). Design of a bio-inspired contact-aided compliant wrist. Robotics and Computer-Integrated Manufacturing, 67, 102028.
– Bruzzone, L., **Baggetta, M.**, Nodehi, S. E., Bilancia, P., & Fanghella, P. (2021). Functional design of a hybrid leg-wheel-track ground mobile robot. Machines, 9(1), 10.
– Bruzzone, L., Fanghella, P., and **Baggetta**, M. "Experimental assessment of fractional-order PDD1/2 control of a brushless DC motor with inertial load." Actuators. Vol. 9. No. 1. MDPI, 2020.

Conference
- **Baggetta, M.**, Hao, G., Berselli, G. (2023, May). Design and Virtual Prototyping of a Constant Force Gripper for Food Handling and Harvesting, ASME 2023 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference (IDETC/CIE2023), ACCEPTED.
- Parmiggiani, A., Ottonello, E., Masoud Kargar, S., **Baggetta, M.**, Hao, G., Berselli, G. (2023, May). DELTAFLEX: AN ADDITIVELY MANUFACTURED MONOLITHIC DELTA ROBOT WITH COMPLIANT JOINTS, ASME 2023 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference (IDETC/CIE2023), ACCEPTED.
- **Baggetta, M.**, Vazzoler, M. , Palli, G., Melchiorri, C., Berselli, G. (2023, May). Conceptual Design of a Compliant, Low-Cost Prosthetic Hand, ASME 2023 Smart Materials, Adaptive Structures and Intelligent Systems (SMASIS2023), ACCEPTED.
- Gattino, C., Ottonello, E., **Baggetta, M.**, Stecki, J., Razzoli, R., & Berselli, G. (2022, September). Computer-Aided Prognostics and Health Management Using Incipient Failure Detection. In Advances on Mechanics, Design Engineering and Manufacturing IV: Proceedings of the International Joint Conference on Mechanics, Design Engineering & Advanced Manufacturing, JCM 2022, June 1-3, 2022, Ischia, Italy (pp. 664-674). Cham: Springer International Publishing.
- **Baggetta, M.**, Berselli, G., Razzoli, R., & Zucchinetti, M. (2022, September). Energy Efficient Trajectory Planning in Robotic Cells via Virtual Prototyping Tools. In Advances on Mechanics, Design Engineering and Manufacturing IV: Proceedings of the International Joint Conference on Mechanics, Design Engineering & Advanced Manufacturing, JCM 2022, June 1-3, 2022, Ischia, Italy (pp. 614-625). Cham: Springer International Publishing.
- **Baggetta, M.**, Berselli, G., Palli, G., & Melchiorri, C. (2022, September). Mechatronic Design and Physical Prototyping of a Three-Fingered Gripper for Underwater Manipulation. In Smart Materials, Adaptive Structures and Intelligent Systems (Vol. 86274, p. V001T03A014). American Society of Mechanical Engineers.
- **Baggetta, M.**, Bilancia, P., Pellicciari, M., & Berselli, G. (2021, December). An integrated approach for motion law optimization in partially compliant slider-crank mechanisms. In 2021 20th International Conference on Advanced Robotics (ICAR) (pp. 695-700). IEEE.

AWARDS

September 2022 Smasis 2022 "Best Symposium paper"

Baggetta, M., Berselli, G., Palli, G., Melchiorri, C. "Mechatronic Design and Physical Prototyping of a Three-Fingered Gripper for Underwater Manipulation"

September 2022 Smasis 2022 "Best Hardware paper: 3rd place"

Baggetta, M., Berselli, G., Palli, G., Melchiorri, C. "Mechatronic Design and Physical Prototyping of a Three-Fingered Gripper for Underwater Manipulation"

June 2022 Faim 2022 "Best Presentation Award: 2nd place"

Baggetta, M., Berselli, G., Palli, G., Melchiorri, C. Design, modeling, and control of a variable stiffness elbow joint

March 2022 Machines 2021 "Best Cover Paper"

Bruzzone, L., **Baggetta, M.**, Nodehi, S.E., Bilancia, P., Fanghella, P. "Functional design of a hybrid leg-wheel-track ground mobile robot"

March 2022 Machines "Editor's Choice Articles"

Bruzzone, L., **Baggetta, M.**, Nodehi, S.E., Bilancia, P., Fanghella, P. "Functional design of a hybrid leg-wheel-track ground mobile robot"

October 2021 I-RIM 2021 "Best Paper Award"

Baggetta, M., Berselli, G., Palli, G., Melchiorri, C. "Virtual Prototyping of a Compliant Robotic Wrist"

PERSONAL SKILLS

Mother tongue Italian

Other languages

UNDERSTANDING		SPEAKING		WRITING
Listening	Reading	Spoken interaction	Spoken production	
C1	C2	C1	B2	C2

(English)

Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user
Common European Framework of Reference for Languages

Digital competences

SELF-ASSESSMENT				
Information Processing	Communication	Content creation	Safety	Problem solving
Proficient user	Proficient user	Proficient user	Proficient user	Proficient user

Digital competences - Self-assessment grid

Computer skills
– competent with most Microsoft Office programmes
– experience with Python

Driving licence A, B

Personal Data I hereby authorize the use of my personal data in accordance to the GDPR 679/16 - "European regulation on the protection of personal data".