Giuseppe **L'Erario**

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Education

Ph.D Candidate. at the University of Manchester — *Genova, Italy*

SPLIT-SITE PH.D WITH ISTITUTO ITALIANO DI TECNOLOGIA AND THE UNIVERSITY OF MANCHESTER — *2020 - Present*

- Topic: Optimization and control techniques for multimodal locomotion, under the supervision of Prof. Angelo Cangelosi.

MSc in Artificial Intelligence and Robotics — *Rome, Italy*

SAPIENZA UNIVERSITÀ DI ROMA, 110/110 SUMMA CUM LAUDE — *2016 - 2019*

- Thesis: "Modeling, Identification, and Control of Model Jet Engines for Aerial Humanoid Robotics" in AMI lab (IIT, Genova - Italy) under the supervision of Dr. Daniele Pucci and Prof. Alessandro De Luca.

BSc in Aerospace Engineering — *Rome, Italy*

SAPIENZA UNIVERSITÀ DI ROMA — *2009 - 2015*

- Thesis: "Flameholder geometry for ramjets and afterburners" under the supervision of Prof. Fausto Gamma.

Experience

Ph.D. Research Fellow at Artificial and Intelligence Lab — *Genova, Italy*

ISTITUTO ITALIANO DI TECNOLOGIA — *Jan. 2020 - Present*

- Working in the context of the iRonCub project for my Ph.D. research under the supervision of Dr. Daniele Pucci.

Research Fellow at Artificial and Intelligence Lab — *Genova, Italy*

ISTITUTO ITALIANO DI TECNOLOGIA — *Jun. 2019 - Dec. 2019*

- Working in the context of the iRonCub project under the supervision of Dr. Daniele Pucci.

Visiting Student at Artificial and Intelligence Lab — *Genova, Italy*

ISTITUTO ITALIANO DI TECNOLOGIA — *Feb. 2019 - May. 2019*

- Working in the context of the iRonCub project under the supervision of Dr. Daniele Pucci, for my master thesis.

SPQR@Work team member — *Roma, Italy*

SAPIENZA UNIVERSITÀ DI ROMA — *Oct. 2017 - Feb. 2019*

- Developing the navigation module for the SPQR@Work team, a spin-off of the S.P.Q.R. RoboCup team.

Skills

Programming	Python, Matlab, LaTeX, experience with C++
Tools and Libraries	git, Gazebo, Yarp, Linux, experience with ROS
Languages	Italian (native), English (IELTS score 7.5)

Libraries

- **ADAM**: a library that computes rigid-body dynamics in Jax, CasADi, PyTorch, and Numpy.
- **liecasadi**: Rigid transform using Lie groups, written in CasADi.
- **matlab-whole-body-simulator**: a robot simulator running on Simulink.

Publications

F. Bergonti, G. Nava, L. Fiorio, G. L'Erario, D. Pucci, "**Modeling and Control of Morphing Covers for the Adaptive Morphology of Humanoid Robots**", IEEE Transactions on Robotics, 2022.

- I supported the main author in the theoretical formulation of the contribution and in the implementation phase.

A. Momin, G. Nava, G. L'Erario, H.A.O. Mohamed, F. Bergonti, P.R. Vanteddu, F. Braghin, D. Pucci, "**Nonlinear Model Identification and Observer Design for Thrust Estimation of Small-scale Turbojet Engines**", International Conference on Robotics and Automation, 2022

- I supervised the main author, supporting in the theoretical development and in the experimental phase.

G. Romualdi, S. Dafarra, G. L'Erario, I. Sorrentino, S. Traversaro, D. Pucci, "**Online non-linear centroidal MPC for humanoid robot locomotion with step adjustment**", International Conference on Robotics and Automation, 2022

- I supported the main author in the theory development and in the experimental activities.

T. Hui, A. Paolino, G. Nava, G. L'Erario, F. Di Natale, F. Bergonti, F. Braghin, D. Pucci, "**Centroidal Aerodynamic Modeling and Control of Flying Multibody Robots**", International Conference on Robotics and Automation, 2022

- I supervised the main author, designing the simulation software and giving support in the theory development and implementation phases.

H.A.O. Mohamed, G. Nava, G. L'Erario, S. Traversaro, F. Bergonti, L. Fiorio, P.R. Vanteddu, F. Braghin, D. Pucci, "**Momentum-based extended Kalman filter for thrust estimation on flying multibody robots**", IEEE Robotics and Automation Letters, 2021

- I supported the main author in the theory development and in the experimental activities.

G. L'Erario, L. Fiorio, G. Nava, F. Bergonti, H.A.O. Mohamed, E. Benenati, S. Traversaro, D. Pucci, "**Modeling, Identification and Control of Model Jet Engines for Jet Powered Robotics**", IEEE Robotics and Automation Letters, 2020.

- I developed the theory contribution, implemented the software, and performed the experimental activities with the support of the iRonCub team.

R.A. Romeo, L. Fiorio, G. L'Erario, M. Maggiali, G. Metta, D. Pucci, "**Dynamic control of a rigid pneumatic gripper**", IEEE Robotics and Automation Letters, 2020.

- I developed the identification procedure and supported the main author in the implementation.