Carlo Bosio

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EDUCATION

University of California, Berkeley   Berkeley, CA, USA
Ph.D. in Robotics and Controls, Supervisor: Prof. M. W. Mueller   2022 – Ongoing
Focus: Optimization, Optimal and Robust Control, Machine Learning

Sant'Anna School of Advanced Studies (SSSA)   Pisa, IT
Honors M.S. Robotics, 100/100 cum laude   2017 – 2022

University of Pisa   Pisa, IT
M.S. Robotics, 110/110 cum laude   2020 – 2022

Thesis: "Grasping Through Microspines: Analysis of a Three Finger Gripper for a Space Exploration Robot"
Supervisor: Prof. M. Cutkosky (Stanford University)

B.S. Mechanical Engineering, 110/110 cum laude   2017 – 2020
Thesis: "Numerical Simulation of Newton's Cradle" — Supervisor: Prof. M. Beghini

PUBLICATIONS

Chen T. G., Newdick S., Di J., **Bosio C.**, Ongole N., Lapôtre M., Pavone M., Cutkosky M., "Locomotion as manipulation with ReachBot," *Science Robotics*, 2024.

Bosio C., Tang J., Wang T. H., Mueller M. W., "Automated Layout Design and Control of Robust Cooperative Grasped-Load Aerial Transportation Systems," *arXiv preprint arXiv:2310.07649*, 2023.

Bosio C., Zrinscak D., Laschi C., Cianchetti M., "Soft Mini Fuse valve for resilient fluidically-actuated robots," *IEEE Robotics and Automation Letters*, 2023.

Bosio C., Junge K., Hughes J., "Scalable Fabrication and Actuation of a Human Inspired Hand Through 3D Printed Flexures and Combinatorial Actuation," *Frontiers in Robotics and AI*, 2022.

Obayashi N., **Bosio C.**, Hughes J., "Soft Passive Swimmer Optimization: From Simulation to Reality Using Data-Driven Transformation," *2022 IEEE 5th International Conference on Soft Robotics (RoboSoft)*, 2022.

EXTRACURRICULAR ACTIVITIES

Deep Tech Fellow - Courtyard Ventures   Nov. 2022 – Oct. 2023
Managing Partner: K. Chang   Berkeley, CA, USA

- Industry agnostic VC investing in startups founded by UC Berkeley students.
- Contributed to the diligence process and investment decisions on robotics and crypto startups.

Visiting Student Researcher - Stanford University   Mar. 2022 – Jul. 2022
Biomimetics and Dexterous Manipulation Lab - Supervisor: Prof. M. Cutkosky   Stanford, CA, USA

- Research assistantship funded by NASA.
- Worked on ReachBot, project focused on a new concept for a space exploration robot. Developed a model and a simulation based on a Monte-Carlo method for the performance evaluation of a microspine gripper. Finally tested the simulation results on a real prototype.
- Softwares: *Matlab, MuJoCo*.

Research Fellow - EPFL E3 Scholar Aug. 2021 – Oct. 2021
CREATE Lab (EPFL) - Supervisor: Prof. J. Hughes Lausanne, CH

- Developed from scratch a flexible, fully 3D printed robotic hand. I took care of the design, the grasp planning and the control of the device.
- In parallel, I also contributed to the design optimization and optimal control of a swimming soft robot.
- Softwares: *Matlab, Autodesk Fusion360, Arduino.*

ANA Avatar XPRIZE Jan. 2020 – Sep. 2021
Perceptual Robotics Laboratory (SSSA) - Supervisor: Prof. A. Frisoli Pisa, IT

- Team competing in developing an Avatar System to remotely interact with environment in real time.
- Developed a C library and a ROS package to digitally control the humanoid avatar's head motors.
- Simulation and control of a mecanum wheel-based omnidirectional platform.
- Accurate dynamics modelling, including joint friction analysis, of a robotic arm (Panda robot by Franka Emika) to improve control performance.
- Softwares: *Matlab, STM32, Simulink, ROS.*

Honors and Awards

KTH RPL Summer School 2024 Selected as fully funded attendee for the KTH RPL Summer School in Stockholm, Sweden (acceptance rate: 3%).

Powley Fund Research Grant: Awarded 30k research funding grant.

Nova 111 Student List 2023: Selected as a highest potential Italian student from Nova Talent Network (acceptance rate: 3%).

EPFL Excellence in Engineering 2021: Awarded the highly competitive E3 Summer Research Fellowship from the EPFL School of Engineering (acceptance rate: 2.3%).

Fondazione Ing. Pirro Liguori Scholarship 2018/22 (First Award): The organisation every year awards the two best University of Pisa engineering students with a monetary scholarship.

Sant'Anna School of Advanced Studies Alumnus 2017/22: Awarded the prestigious Sant'Anna full residential scholarship (acceptance rate: 3%).

Skills

Programming Languages: C/C++, Python, Linux Shell, Matlab, R

Programming Frameworks/Libraries: ROS, Git, PyTorch, LaTeX

Spoken Languages: Italian (native), English (fluent, TOEFL iBT 111/120), French (fluent, DELF B2, EsaBac diploma), Chinese (basic)

Volunteering

CIF (Centro Italiano Femminile): After-school weekly activities for children in underprivileged social situations.

ISSNAF (Italian Scientists and Scolars in North America Foundation): Organizig cultural events across the San Francisco Bay Area.