Giovanni **Franzese**

Postdoctoral Researcher in Interactive Robot Learning,
Cognitive Robotics, Mechanical Engineering, TU Delft, The Netherlands ·

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About

I am seeking a Research Scientist position in Robot Learning starting from September 2024. I have over 6 years of experience in learning and performing complex real-world manipulation tasks and interactive learning from human teachers. I completed my doctoral studies developing control and learning strategies for safe and flexible robot learning, focusing on both single and bimanual manipulation. I have managed students and collaborated with PhD and Postdoctoral researchers on projects, including robot dressing, assembly tasks, surface cleaning/polishing, supermarket reshelving, and plant harvesting. I advocate open source, knowledge sharing, and teaching. I actively help colleagues in my university and the whole community advance in the complex field of robot learning. My controllers and algorithms are deployed in different labs for safer human-robot interaction and learning.

Skills

Robot Control	Variable Impedance Control for Single and Bimanual Manipulation. Safe human-robot interaction.
Robot Learning	Low-level and high-level skill learning from human interactive demonstrations.
Machine Learning	Gaussian Process. Epistemic Uncertainty Estimation and Calibration. Variational Inference.
Project Management	I have managed six Master projects independently and many others in collaboration with other researchers.
Programming	Object-oriented programming (Python and C++). Robotic Operating System (ROS), Scientific Writing (LaTeX)
Languages	English, Italian

Experience

PostDoc @ Delft University of Technology — *Delft, Netherlands*

Postdoctoral Research. Mentor: Cosimo Della Santina. NXTGEN high-tech agri-food Project. — *Sep. 2023 - now*

Managing the Franka Emika lab of Cognitive Robotics, TU Delft. Investigating learning-based methods for improving the reliability of low-cost, soft, and deformable hardware. Experimenting with generalizing manipulation skills in plant branch cutting.

Robothon Manipulation Challenge 2023 — *Delft, Netherlands*

Team Leader PLATOnics team for Robothon Challenge 2023. — *April. 2023 - May. 2023*

Completed the task using a fully interactive learned-from-demonstrations approach combining proprioceptive and visual information.

Visiting Ph.D. @ UCL (University College London) — *London, United Kingdom*

Visiting Ph.D. in Statistical Machine Learning group. Mentor: Marc Deisenroth. — *Sep. 2022 - Feb 2023*

I focused on variational inference learning methods to perform calibrated classification on high-dimensional inputs like images or graphs.

Education

Ph.D. @ Delft University of Technology — *Delft, Netherlands*

Ph.D. in Interactive Imitation Learning for Robotics in Department of Cognitive Robotics. ERC grant TERI (Teaching Robot Interactively). Thesis: Uncertainty-aware Interactive Imitation Learning for Robot Manipulation. Mentor: Jens Kober, Luka Peternel. Official defense: September 2024. — *June. 2019 - June 2023*

Visiting M.Sc. @ Eindhoven University of Technology — *Eindhoven, Netherlands*

ERASMUS+ Master thesis in Department of Dynamics and Control. Mentor: Alessandro Saccon. Thesis: On computing second derivatives in optimal motion planning for robot manipulators. — *Feb. 2018 - July 2018*

M.Sc. @ Politecnico di Milano — *Milano, Italy*

M.Sc. Masters Degree in Mechatronics and Robotics (107/110) — *Sept. 2016 - Dec. 2018*

B.Sc. @ Politecnico di Milano — *Milano, Italy*

Bachelor Degree in Mechanical Engineering (104/110) — *Sept 2013 - Sept 2016*

Teaching

2022,23,24	**Lecturer on Gaussian Process for Robotics and Control** MSc course Intelligent Control Systems	*TU Delft*
2020,21	**Teaching Assistant** MSc course Machine Learning for Robotics	*TU Delft*

Selected Publications

2024	**Generalization of Task Parameterized Dynamical Systems using Gaussian Process Transportation** Giovanni Franzese, Ravi Prakash, and Jens Kober, in Transaction of Robotics. (Under review)	*T-RO*
2023	**Do You Need a Hand?–a Bimanual Robotic Dressing Assistance Scheme** Jihong Zhu, Michael Gienger, Giovanni Franzese, Jens Kober, in Transaction of Robotics.	*T-RO*
2023	**Interactive Imitation Learning of Bimanual Movement Primitives** Giovanni Franzese, Leandro de Souza Rosa, Tim Verburg, Luka Peternel, Jens Kober, in Transaction of Mechatronics	*T-MECH*
2023	**Interactive Imitation Learning in Robotcs: A Survey** Carlos Celemin, Rodrigo Pérez-Dattari, Eugenio Chisari, Giovanni Franzese, Leandro de Souza Rosa, Ravi Prakash, Zlatan Ajanović, Marta Ferraz, Abhinav Valada, Jens Kober. Foundations and Trends® in Robotics	*Foundations and Trends® in Robotics*
2022	**Learning to Pick at Non-Zero-Velocity from Interactive Demonstrations** A Mészáros, G Franzese, J Kober. Robotics and Automation Letter (RA-L)	*RA-L*
2021	**ILoSA: Interactive Learning of Stiffness and Attractors** G Franzese, A Mészáros, L Peternel, J Kober. International Conference on Intelligent Robots and Systems	*IROS*
2020	**Learning interactively to resolve ambiguity in reference frame selection** G Franzese, CE Celemin, J Kober. COnference of Robot Learning	*CoRL*

Awards

2022	**TAILOR Connectivity found** Awarded 15.000 € for visiting University College London from September 2022 to February 2023	
2022	**ELLIS PhD Student** ELLIS PhDs conduct cutting-edge curiosity-driven research in machine learning or a related research area with the goal of publishing in top-tier conferences in the field.	
2022	**Winner Franka-Emika Manipulation Hackathon** at the European Robotics Forum	*Rotterdam*
2021	**Winner of BEST LATE BREAKING RESULTS POSTER AWARD** IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM)	