ANDREA TAGLIABUE

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Applied Scientist at Amazon Robotics; PhD, MIT. I build learning-based **manipulation and mobile-manipulation** systems for the real world: data-sparse **imitation learning** for manipulation and trajectory-tracking policies, **sim-to-real transfer**, interaction control, and vision-based control for agile flight. 1,250+ citations, h-index 16.

EXPERIENCE

Amazon Robotics **North Reading, MA**
Applied Scientist II *Sept. 2024 – present*
Manipulation for mobile manipulation using **imitation learning**; unilateral and bilateral **teleoperation** strategies; **sim-to-real transfer** in perception, actuation, and interaction with the environment; and large-scale **ML infrastructure** for multimodal sensing.

MIT, Laboratory for Information and Decision Systems **Cambridge, MA**
PhD Research Assistant, then Postdoctoral Associate. Advisor: Prof. Jonathan P. How *Sept. 2019 – Aug. 2024*
Efficient imitation learning of robust, adaptive, vision-based policies from MPC, including NeRF-based real-to-sim data generation for visuomotor policy learning (Tube-NeRF, RA-L'24); deployed on acrobatic UAVs and insect-scale flapping-wing robots (Science Advances'25, T-RO'24, ICRA'23 best paper finalist).

NASA's Jet Propulsion Laboratory / Caltech **Pasadena, CA**
Robotics Engineer Affiliate; previously JPL Intern *Jun. 2018 – Aug. 2019*
Lidar-inertial odometry for the DARPA Subterranean Challenge (**1st place**, Urban Circuit, team CoSTAR); morphing robot concept for Titan (CNN).

UC Berkeley | ETH Zurich | ABB **Berkeley, CA & Zurich, Switzerland**
Visiting researcher (Berkeley); Research Assistant, ASL (ETH); Software Intern (ABB) *Sept. 2016 – May 2018*
Online motion optimization for UAV endurance (ICRA'19); communication-free collaborative aerial transportation with force control (IJRR'19).

EDUCATION

MIT — PhD, Autonomous Systems and Machine Learning. GPA: 5.0/5.0. 2024
ETH Zurich — MSc, Robotics, Systems and Control. GPA: 5.7/6.0 (top 20%). 2018
Politecnico di Milano — BSc, Automation Engineering. 110/110 *with honors* (top 4%). 2015

SKILLS

Languages: Python, C/C++, Bash, Matlab, LaTeX. **Libraries & tools**: PyTorch, OpenCV, ONNX, TensorRT, ROS/Gazebo, Eigen, GTSAM, Git.

HONORS

Finalist, Best Paper Award in Dynamics and Control, IEEE ICRA. 2023
1st Place, Urban Circuit, DARPA Subterranean Challenge — perception team, CoSTAR (JPL/Caltech/MIT). 2020
Ermenegildo Zegna Founder's Scholarship, supporting research at NASA's JPL. 2018

SELECTED PUBLICATIONS

- Y.-H. Hsiao*, **A. Tagliabue***, O. Matteson*, *et al.*, "Aerobatic maneuvers in insect-scale flapping-wing aerial robots via deep-learned robust tube MPC," *Science Advances*, 2025 (*co-lead; featured by MIT News).
- **A. Tagliabue**, J. P. How, "Efficient Deep Learning of Robust Policies from MPC using Imitation and Tube-Guided Data Augmentation," *IEEE T-RO*, 2024.
- **A. Tagliabue**, J. P. How, "Tube-NeRF: Efficient Imitation Learning of Visuomotor Policies from MPC via Tube-Guided Data Augmentation and NeRFs," *IEEE RA-L*, 2024.
- **A. Tagliabue**, *et al.*, "Robust, High-Rate Trajectory Tracking on Insect-Scale Soft-Actuated Aerial Robots with Deep-Learned Tube MPC," *ICRA*, 2023. **Best Paper Award finalist, Dynamics and Control**.
- **A. Tagliabue**, K. Kondo, T. Zhao, M. Peterson, C. T. Tewari, J. P. How, "REAL: Resilience and Adaptation using Large Language Models on Autonomous Aerial Robots," *IEEE CDC*, 2024.
- **A. Tagliabue***, J. Tordesillas*, X. Cai*, *et al.*, "LION: Lidar-Inertial Observability-Aware Navigator for Vision-Denied Environments," *ISER*, 2020.
- **A. Tagliabue***, M. Kamel*, R. Siegwart, J. Nieto, "Robust Collaborative Object Transportation Using Multiple MAVs," *IJRR*, 2019.

Full list (20+ peer-reviewed) on Google Scholar. Reviewer for T-RO, RA-L, ICRA, IROS, CoRL, L4DC, CDC, ACC.