Manuel Yves Galliker

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🔗 manuel-galliker • San Francisco, CA, USA

Robotics Engineer / Researcher / DIY Enthusiast and Maker / Open Source Developer

Passionate and results-driven with repeated success in translating theory into practice, considerable leadership abilities and the desire to push robotics towards real-world applications.

Education

ETH Zurich	**Zurich, Switzerland**
MSc Mech. Engineering, Robotics, Systems and Controls	*September 2019– January 2022*
Caltech	**Pasadena CA, USA**
Visiting Student Researcher	*August 2021– January 2022*
ETH Zurich	**Zurich, Switzerland**
BSc Mechanical Engineering	*September 2014– August 2018*
Military Service, Swiss Armed Forces	**Payerne, Switzerland**
Squad leader of the fighter aircraft ground operations team	*March 2014 - September 2014*

Work Experience

Physical Intelligence — **San Francisco, CA, USA**
Member of Technical Staff — *March 2025*

Development of general-purpose robotic vision-language-action foundation models for robotic manipulation with a focus on real-time execution of action chunking flow policies and a robot agnostic controller runtime for cross-embodiment control. (Python, C++, MuJoCo, AWS, S3)

1X Technologies — **Sunnyvale, CA, USA**
Research Engineer Robotic Learning — *June 2024 - January 2025*

Developed a torque-based reinforcement learning locomotion policy for the fully tendon-driven humanoid Neo spanning training in Isaac Gym, system identification for sim-to-real transfer, C++ inference, and an upper-body inverse dynamics controller. Integration of MuJoCo simulation for automated autonomy evaluation of RL locomotion and imitation-learned manipulation policies. (Python, C++, Issac Gym, MuJoCo, Pytorch, ONNX)

1X Technologies — **Moss, Norway**
Team Lead Controls and Embedded — *September 2023 - June 2024*

Leading and coordinating the successful bring up of our humanoid robot Neo from the first prototype to robust dynamic walking using Whole-Body NMPC and VR teleoperation. Developed a reinforcement learning pipeline in NVIDIA Isaac Sim and set up initial real-time C++ controls software stack. (C++, Python, Java, OCS2, Pinocchio, Pytorch, ONNX)

1X Technologies — **Moss, Norway**
Senior Robotic Controls Engineer — *September 2022 - August 2023*

Developed a real-time motion planning framework for bipedal loco-manipulation using Whole-Body NMPC. Software development, testing and system integration of our custom made torque controlled REVO2 electrical motors using embedded Field Oriented Control (FOC). Growing the team by successfully hiring two controls and one firmware engineer. (C++, Python, Java, OCS2, Pinocchio, ROS2, EtherCAT)

Rehabilitation Engineering Lab, ETH Zurich — **Zurich, Switzerland**
Civil Service Research Assistant Software Development — *February 2022- May 2022*

Software development for robotic assessment and therapy of somatosensory hand movement of patients with neurological injuries (in place of mandatory military service). (C#, Unity3D, SQLite)

Robotics Systems Lab, Autonomous Systems Lab, ETH Zurich — **Zurich, Switzerland**
Teaching Assistant: Robot Dynamics — *September 2020 - February 2021*

Assisted for questions and exercise sessions for the master course. (Nonlinear Systems and Control Theory, Matlab)

Wingtra   **Zurich, Switzerland**
Work Student Software & Industrialization Engineer, Part-time   *September 2019 - February 2020*

Enhanced quality control and reliability of tailsitter UAV for high precision aerial mapping through expansion of automated data collection, analysis and process optimization with a focus on actuators. (Python, Qt)

Wingtra   **Zurich, Switzerland**
Development Engineer   *April 2019 - August 2019*

Improved reliability and performance of tailsitter UAV through software hardware projects on automated temperature calibration of IMU, barometer and airspeed sensor and automated actuator test bench. (Altium, Python, C++, Px4)

Wingtra   **Zurich, Switzerland**
Hardware Development Internship   *October 2018 - March 2019*

Improved performance and reliability through extensive sensor evaluation, actuator redesign and debugging of the drone and roll-out of new manufacturing processes.(Rapid Prototyping, Matlab, Solidworks)

Student Focus Project ftero, ASL and CMAS-Lab, ETH Zurich   **Zurich, Switzerland**
Team Leader Controls and External Relations   *September 2017 -June 2018*

Leading the controls and mechatronics team to develop system modeling, controls, actuation, electronics and sensing for a prototype of an Airborne Wind Energy System. (Project Management, Control Theory, Aerodynamics, KiCAD, Power Electronics, C++, PX4)

Publications

Real-Time Execution of Action Chunking Flow Policies   **NeurIPS 2025, Preprint**
K. Black, M. Y. Galliker, S.Levine   *April 2025*

$\pi_{0.5}$**: a Vision-Language-Action Model with Open-World Generalization**   **CoRL 2025, Preprint**
P. Intelligence, M. Y. Galliker Et al.   *September 2021*

Bipedal Locomotion with Nonlinear Model Predictive Control: **IEEE-RAS Humanoids**
Online Gait Generation using Whole-Body Dynamics   *March 2022*
M. Y. Galliker, N. Csomay-Shanklin, R. Grandia, A. J. Taylor, F. Farshidian, M. Hutter, A. D. Ames

Data-Driven Dynamics Modelling Using Flight Logs   **ETH Research Collection**
Manuel Yves Galliker   *September 2021*

Fast Prototyping Morphing Wings for Airborne Wind Energy   **Airborne Wind Energy Conference**
M. Galliker, F. Schläfli, R. Bättig, M. Hensen, B. Kader, Et al.   *October 2019*

Talks & Public Appearances

Towards General Loco-Manipulation Control for the Android NEO   **CoRL 2024**
Manuel Yves Galliker   *November 2024, Munich, Germany*

Towards General Loco-Manipulation Control for Legged Robots   **Universität Freiburg**
Manuel Yves Galliker   *April 2024, Freiburg, Germany*

Towards General Loco-Manipulation Control of the 1X Androids   **IEEE-RAS Humanoids 2023**
Manuel Yves Galliker   *December 2023, Austin, TX*
Workshop on Generalizable and Robust Decision Making, Planning, and Control for Humanoid Loco-Manipulation

Towards Automating Physical Labor in Human Spaces   **Caltech**
Manuel Yves Galliker   *December 2023, Pasadena, CA*

Towards Automating Physical Labor in Human Spaces   **MIT**
Manuel Yves Galliker   *November 2023, Cambridge, MA*

Personal & Technical Skills

- **Soft Skills:** Strong Communicator, Project Management, Teamwork, Public Speaking, Analytical Decision Making and Creative Problem Solving

- **Programming Languages:** Proficient in: Modern C++, C, Python, Java, Matlab, Shell, C#

- **Industry Software Skills:** Linux, Git, NVIDIA Isaac Sim and Omniverse, MuJoCo, Pytorch, Tensorboard, Docker, Matlab and Simulink, TeX, ROS/ROS2, PX4, Altium, KiCAD, QT, Solidworks, Siemens NX, Unity3D, SQLite

- **Languages:** German (native), English (proficient), French (fluent)

Leadership & Awards

- **Best Oral Paper Award Finalist (2022):** IEEE-RAS International Conference on Humanoid Robots for my work on "Bipedal Locomotion with Nonlinear Model Predictive Control: Online Gait Generation using Whole-Body Dynamics.

- **President/Vice President and Treasurer of AMIV Bastli (2020 - 2021, 2016 - 2017):** Managing team, daily operations and external communication at the student Maker- and Hackerspace at ETH Zurich to foster the creativity, innovativeness and practical skills of fellow students.

- **HackZurich Finalist (2020):** Selected as one of the best 25 projects out of more than 300 submissions at Europe's largest hackathon.

- **SPHAIR Swiss Aviation Talents Graduate (2016):** Completion of the youth pilot selection of the Swiss Confederation by successfully mastering all aspects of flying a plane within two weeks.

- **Scout Leader (2010 - 2014):** Organizing various outdoor activities, summer and ski camps for children and teenagers in the local scouting group in Konolfingen.