

TAKUYA BOEHRINGER

LinkedIn • Google Scholar • Portfolio

tlb2160@columbia.edu

MS Mechanical Engineering student at Columbia University. Specialized in robotics and machine learning. British and Canadian.

EDUCATION

MS Mechanical Engineering (Robotics and Control Track) - Columbia University	August 2025 - Present
MEng Computer Science (Robotics Minor) - University College London (UCL) - 2:1	Sep 2021 - June 2025

PUBLICATIONS

[Conference Paper] IEEE International Conference on Automation Science and Engineering (CASE)

First Author

Immersive Teleoperation Framework for Locomanipulation Tasks

[Journal Paper] Scientific Reports (Nature)

Second Author

Analyzing Spatio-temporal Dynamics of Dissolved Oxygen for the River Thames using Superstatistical Methods and Machine Learning

WORK EXPERIENCE

Summer Researcher - UCL - (Robot Perception and Learning Lab)	May - Sept 2024
<ul style="list-style-type: none">Collaborated with Prof Dimitrios Kanoulas to have my paper accepted by the IEEE International Conference on Automation Science and Engineering (CASE).Presented the paper live at CASE 2025 in Los Angeles.Developed a framework for VR robotic teleoperation for locomanipulation tasks.Used Unity to develop the interface for the Meta Quest 2, integrating ROS and Gaussian Splatting into the pipeline.	
Software Engineering Intern - Leonardo - (Electronic Warfare)	July - Aug 2023
<ul style="list-style-type: none">Worked on a classified project in the Electronic Warfare division.Used C++ for embedded linux programming and to interface with firmware.Programmed in C# to create a WPF user interface and socket programming to interact with embedded devices.	

PROJECTS

Columbia Autonomous Racing Team	Oct 2025 - Present
<ul style="list-style-type: none">Currently working on state estimation, taking parameters from the racecar's perception systems and using bayesian filtering to output the relative position of the car on the track, sending the output data to the car's control systems.Also using ROS and C++ to integrate all subsystems in the software stack.	
Robot Studio Project	Sept 2025 - Dec 2025
<ul style="list-style-type: none">Designed, built and programmed a robot of my own design for the Robotic Studio class by Prof Hod Lipson.Built two Klann linkages for an eight-legged locomotion.Trained it to crab walk via simulation in MuJoCo using various optimization algorithms and reinforcement learning.Deployed the policy sim-to-real for testing.	
UKSEDS - Olympus Rover Trials 2024	Oct 2023 - July 2024
<ul style="list-style-type: none">Worked as a part of the UCL team in the UKSEDS Olympus Rover Trials.Developed software for the locomotion, navigation and odometry of the Mars rover using ROS.Won the award for best CDR.	
Industrial eXchange Network (IXN) Programme - MotionInput 3.0	Oct 2022 - May 2023
<ul style="list-style-type: none">Lead a team developing glassless VR for gaming and endoscopic surgery.Implemented stereoscopic 3D images on 2D displays using head tracking and disparity maps.Partnered with Intel, Microsoft, Sony and the WEISS robotic surgery centre.	

SKILLS

Programming Languages: *Python, C, C++, C#, MATLAB*

Machine Learning: *Supervised Learning, Unsupervised Learning, Deep Learning (PyTorch), Reinforcement Learning*

Electronics: *Analog Electronics, Microcontrollers (Arduino), Schematics (KiCAD)*

Simulation: *MuJoCo, Unity, RoboDK*

CAD - *Fusion 360*

Other: *ROS, Robotic Control, Sensor Fusion, Git, Linux, 3D Printing, SQL, LaTeX*