



Embodied AI researcher & simulation engineer, specialising in neuromechanics-inspired RL policies for manipulation and locomotion.

Work Experience

2025 - **Postdoctoral Researcher, Imperial College/Meta Wearable Neural Interfaces Research Centre:** Developed neuromechanical models of the hand, and its control policies using RL. Built experimentally validated, closed-loop neural signal synthesis pipeline in massively parallelized simulated environments. Achieved 100x speedup (100k+ sps) by parallelizing via **JAX** and **Warp** on **HPC** clusters. [\[project demo link\]](#)

Led Imperial's contributions on multiple >€500k ERC **grant applications** in robotics and sensor manufacturing projects that met excellence requirements. Developed **robotic hand simulation** controlled by users in real-time VR to test human-machine interfacing devices. Co-designed **Unity-based image data synthesis** pipeline for object detection and **hand preshaping** system for robotic grasping.

2023-25 **Contractor, Google DeepMind:** Developed **features** for the Unity plugin to the MuJoCo physics engine. Contributed **bug-fixes and PRs** to MuJoCo and related open-source projects and provided community moderation. Contributed **system identified robotic end-effector** model to MuJoCo Menagerie.

2023 **Research Intern, Artanim Foundation:** Investigated social spacing in virtual environments. Developed tools and processes for physics-based animation and locomotion simulation. Implemented interactive environments in VR using Unity. Planning and performing full-body, **multi-actor motion capture sessions** for motion-tracking datasets.

2017-24 **Teaching assistant:** Leading seminars and tutorials, creating and presenting lecture content, planning and grading coursework. Lead TA for Human Neuromechanical Control and Learning.

Education & Research Experience

2020-24 **Bioengineering Research PhD project, Imperial College London:** Shared-autonomy **locomotion** using intent-driven, **compliant robotic** legs on **challenging terrain** in simulated **RL** environments. Collected experimental motion and biosignal datasets and processed them with TCNs to extract high-level user intent. **4 first-author articles published, 1 more under review. 8 second-author articles, including in Nature Communications. 1st place presentation in category at iCBEI22.**

Co-first author of the **NeurIPS** competitions MyoChallenge24-26, designed RL environments (including **bimanual manipulation**) and reward-hacking resistant evaluation metrics (partially through **domain randomisation**) for 100+ competing teams. **Published in NeurIPS 2025 to D&B track, and ICORR 2025.** Developed and implemented features to utilise hardware accelerated parallelised simulation of these open-sourced environments.

2019-20 **MEng Biomedical Engineering, Imperial College London:** Projects included parallelised image processing algorithms with CNNs for brain-cell



counting and building accessible UI for controlling various assistive technology. Built a data loading, systematic training and documentation systems for my thesis project; EMG based **kinematics prediction** and **activity classifier**. **Projects presented at AAATE18, BioMedEng19, BioMedEng22 conferences**. First Class Honours, Dean's list

Skills

- **Simulation & RL: MuJoCo, JAX, Warp**, Brax, IsaacLab, Unity (C#), GPU-parallel training, reward design, domain randomization, system identification, scene creation via Unity, Blender, MJCF and URDF. Familiarity with physics engines e.g. Genesis, Bullet, SimBody and PhysX.
- **Technical skills:** Signal processing, human-machine interfacing, supervised and reinforcement learning, information theory, gait analysis, motion capture, optimal control, system-identification
- **IT:** Python, C#, Git, C++, ROS, CI/CD pipelines, unit testing, app development
- **Entrepreneurship:** Trained on managing and protecting IP, regulations and tech transfer. Worked with **startups/companies** at different stages (e.g. Neubond, Artanim), making simulations and visualisations they used for fundraising and outreach.
- **Communication:** Experience as teaching assistant, PhD student society chair. **Designing and leading three-day workshops on simulation and neuromechanics at Summer School of Neurorehabilitation 2023-26.**
- **Supervision:** Contributed to and advised student projects involving **exoskeleton control, tactile sensing**, IMU based motion capture, uncertainty modelling, **vision-based robotics simulation**.

Other Interests and Successes

- **Released an open-source [RL-based locomotion learning toolkit](#), [written interactive tutorials](#) and a [robotics modelling utility](#).**
- Contributed peer reviews to multiple journals including Science Robotics, multiple IEEE journals and Wearable Technologies. Literature reviews in topics of human stance control, upper limb rehabilitation exoskeletons and simulated bionics.
- Organising chair of the CDT Prosthetics & Orthotics Conference 2021.
- Personal Projects: Arduino and Raspberry Pi electronics projects, programming video games, image processing apps
- Running for charity, playing guitar, dragon boat paddling

Key publications

Hodossy, B.K. and Farina, D., 2023. Shared Autonomy Locomotion Synthesis With a Virtual Powered Prosthetic Ankle. IEEE Transactions on Neural Systems and Rehabilitation Engineering

Wang, H., Tan, C.K., Hodossy, B., Lyu, S., Schumacher, P., et al., 2026. MyoChallenge 2024: A New Benchmark for Physiological Dexterity and Agility in Bionic Humans. Advances in Neural Information Processing Systems, 38.