Bálint Károly Hodossy

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Education

2020-24 **Bioengineering Research PhD, Imperial College London**
Supervisor: Dario Farina

2016-20 **MEng Biomedical Engineering, Imperial College London**
First Class Honours (78.14) Year 3 Dean's List, Best Poster award

Research Experience

2020-24 **PhD:** Learned shared-autonomy locomotion control using **RL** for human and intent-driven bionic limb over challenging terrain in **simulated environments** I built. Collected my own experimental motion and biosignal datasets and processed them with TCNs to extract high-level user intent. **1st place presentation in category at iCBEI22, 2 first-author articles published in IEEE journals, 2 more under review.**

2016-20 **MEng:** Projects included parallelised image processing algorithms with CNNs for brain-cell counting and building accessible UI for controlling various assistive technology. Built my own 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.**

2024/25 Coauthor of the **NeurIPS** competition MyoChallenge, created simulated scenes for RL in humanoid control tasks. **Accepted in 2025 to D&B track**.

Work Experience

2025 - **ICL/Meta:** Postdoctoral researcher at the Wearable Neural Interfaces Research Centre. Developed neuromechanical models of the hand, and control policies using RL. Built fully forward muscle signal synthesis pipeline in **massively parallelized** simulated environments with Jax for **data augmentation**. Planning and writing for multiple grant applications.

2023-25 **Google DeepMind:** Contractor to develop features for the Unity plugin for DeepMind's **MuJoCo physics engine** and provide community moderation and answers. Managed issues and fixed bugs for other related projects too.

2023 **Artanim Foundation:** Paid research internship position. Developed tools and processes for physics-based animation. Implemented **imitation learning** and **behavioural cloning** systems, as well as interactive environments in **VR**. Planned and performed full-body, multi-actor motion capture sessions.

Skills

- **IT:** Python, Jax, ML frameworks (TF Keras, PyTorch, Flax), Unity, C#, Arduino, Blender, Git, WPF, C++
- Released and documented an open-source RL humanoid control toolkit
- **Theory skills:** Signal processing, Supervised and Reinforcement Learning, Information theory
- **Soft Skills:** Coordinated teaching assistance on university course. Designed and led multi-day workshops for simulating wearable robotics. Organized student conference. Supervised and guided students on vision-based robotics control, mocap suits, sensor simulation and estimator uncertainty modelling.
- **Writing & Research:** Performed systematic reviews, provided peer-review to IEEE journals, Publications listed on Google Scholar