Joshua Brown PhD, FHEA, ACGI https://www.jb-robotics.com

Qualifications

PhD, Haptics – Queen Mary University of London *2018 – 2023, awarded Feb 2024*

- Developed soft haptic interfaces for real-time robot operation in hazardous environments
- Awarded 2nd place in the UK Best PhD in Robotics Award competition 2023
- Co-designer of a 3D printable face shield visor for COVID-19 protection, the second such product to gain medical certification in the UK. Over 3,000 of these visors were produced and used in London hospitals.
- Initiated collaborations between the Robotics Centre and Departments of Psychology and Medicine
- Co-founded a startup company, Human Robotix Ltd. to commercialize parts of my research
- Webmaster for the Centre for Advanced Robotics public website
- Awarded the Queen Mary Diploma of Researcher Development
- Funded by the EPSRC, IEEE and Queen Mary University of London

MEng, Electronic and Information Engineering, 2.1 (Hons) – Imperial College London *2014-2018*

- Developed a fingertip tactile display to render a tactile representation of printed text, shape and colour
- Awarded 85% mark and the Eric Laithwaite prize for outstanding innovation in the final year project
- Presented undergraduate research projects to researchers and students from other departments as well as members of the public at three Great Exhibition Road Festivals (formerly the Imperial College Festival)

Research Experience

- Research Fellow – Hamlyn Centre for Robotic Surgery, Imperial College London (2025-*present*)
  Leading independent research in haptics and touch in medicine, technology-enhanced medical education, and personalised medical devices.
- Visiting Scholar – Mechanical Engineering, Massachusetts Institute of Technology (2025-*present*)
  Investigating soft thermotactile display technology for use in medical and XR contexts. Co-founder & Director of Engineering – Human Robotix Ltd. (2021-*present*)
  Leading the design and manufacturing of robots for use in rehabilitation and neuromechanics research.
- Haptics Research Associate – Department of Surgery and Cancer, Imperial College London (2023-*2025*)
  Developing haptic simulations of medical examinations for use in medical schools and surgical units. PI and project lead for the POLAR affordable prosthetics project.
- Visiting Researcher – Department of Mechanical Engineering, Seoul National University (2024)
  Designed and tested softness- and shape-changing haptic interfaces.
- Visiting Researcher – Royal London Dental Hospital (2020-2023)
  Designed a 3D printed, personalisable stent for use in odontogenic cyst decompression, now in routine clinical use. Developed a method for 3D printing biocompatible ceramic materials for use in dental restoration in collaboration with a market leader in medical 3D printing (details under NDA).
- Teaching Assistant – Various departments, Queen Mary University of London (2019-2023)
- Visiting Researcher – Electronic Engineering and Computer Science, York University, Canada (2022)
  Investigated the role of haptic feedback in underwater teleoperation.
- Research Assistant – Department of Bioengineering, Imperial College London (2020-2021)
  Designed a modular, low-cost joint manipulation robot.
- Research Assistant – Various departments, Queen Mary University of London (2019-2020)

Selected Publications

(Co-)author or inventor of 1 patent (pending) and 18 peer-reviewed publications (plus 3 in-review)

- **J. Brown**, I. Farkhatdinov, M. Jenkin, 'ROV Teleoperation in the Presence of Cross-Currents using Soft Haptics', Journal of Field Robotics, Wiley, 2025.
- **J. Brown**, F. Bello, "Design and Characterisation of Particle Jamming-Based Variable Stiffness Displays using Non-Pneumatic Actuators," IEEE Haptics Symposium, 2024. **(Best paper honorable mention)**
- **J. Brown**, I. Farkhatdinov, "Soft Haptic Interface based on Vibration and Particle Jamming," IEEE Haptics Symposium, 2020. **(Best paper finalist)**

Full list (including links and PDFs) available at https://www.jb-robotics.com/publications and Google Scholar

Selected Funding (Total funding approx. £230,000)

- Imperial College EDI Seed Fund*^, £1,800 2025
- Imperial College StudentShapers*^, £5,220 2024
- Imperial College Surgery and Cancer Seed Fund**^, £5,540 2024
- Imperial College-MIT Global Seed Fund*^, ~£35,000 2024
- MRC UK-Korea Biomedical Partnering Award*^, UKRI & NRF, ~£100,000 2023
- Dame Julia Higgins Postdoctoral Collaboration Award**^, Imperial College London, £2,900 2023
- Bart's and the London Charity Advancing Healthcare Grant*, ~£50,000 2021
- Globalink UK-Canada Doctoral Exchange^, UKRI & Mitacs, ~£12,000 2020
- IEEE Innovation in Haptics Award**^, IEEE Technical Committee on Haptics, $2,500 2018

* Co-I | ** PI | ^ Lead writer/proposer

Awards

2nd place – 2023 UK Best PhD in Robotics Award (2024); Runner up for best poster, HSMR 2024 workshop on Haptics in Medicine (2024); Honorable mention for best paper, IEEE Haptics Symposium (2024); Engagement and Impact - Local Champion Award, QMUL (2021); Best paper nominee, IEEE Haptics Symposium (2020); Best poster, Materials Research Institute Christmas Symposium (2019); Imperial College Eric Laithwaite Prize (2018); Imperial College President's Scholarship (2014); Bloodhound SSC Award for Excellence in Engineering (2013); Advanced STEM Leaders Award (2013); Rolls-Royce Arkwright Engineering Scholarship (2012)

Teaching

Qualifications and leadership

- Fellowship of the Higher Education Academy (FHEA) awarded January 2025
- Co-chair, Imperial College Special Interest Group on Extended Reality (XR) in Education (*2023*-2025)
- Leading the development of digital education tools for training Imperial College medical students in physical examination, surgical skills, dermatology and clinical communication.

Experience

- Guest lecturer: MS Design and Control of Medical Robots, Seoul National University, 2024
- Supervision: 19 MRes, MEng, MSc, and (i)BSc project students. 4 prize-winning students, 2 pursuing PhDs.
- Labs including: Skills for robotics engineering, Robotics design and build project, Interaction design

Invited Activities

- Workshops co-chair, IEEE WorldHaptics Conference 2027
- Work-in-progress co-chair, IEEE Haptics Symposium 2026
- Invited presentation at TAROS 2024
- Invited presentation at a EuroHaptics 2024 workshop on soft haptics - https://www.youtube.com/watch?v=2DWNzQPqhn8
- Invited interactive demo at Haptics Symposium 2024 Cross-Cutting Challenges session on soft haptics
- Invited guest lecture on Haptics in Medicine, Seoul National University, 2024
- Invited seminar at the Healthcare Robotics (HeRo) Lab, Seoul National University, 2024
- Invited presentation, Korea-UK Workshop on Medical Robotics, 2024
- Invited seminar at the Laboratory for Intelligent Systems, EPFL, 2023
- Web Chair, TAROS 2019 conference
- Reviewer for Transactions on Haptics, Robotics and Automation Letters, ICRA 2020, EuroHaptics 2020, ICRA 2021, EuroHaptics 2022, HAID 2022, RO-MAN 2024, RoboSoft 2025, Ubiquitous Robotics 2025

Professional Activities

- Reviewer and award committee member for Imperial College Dame Julia Higgins Collaborative Grant
- Co-organizer, workshop on haptics in medicine at the Hamlyn Symposium on Medical Robotics (2024)
- Chair, PhD Student Representatives Committee, QMUL EECS, (2020-2022)