Dr. Dipankar Bhattacharya

Marie Curie Fellow | Robotics, Control Systems & AI

Imperial College London | Dyson School of Engineering

d.bhattacharya@imperial.ac.uk Portfolio LinkedIn London, UK

15+ Publications	10+ Research Projects	5+ Countries	8+ Years Experience

Research Domains

Medical Robotics

Soft robotics, rehabilitation systems, exoskeletons, and assistive devices for healthcare applications.

Industrial Automation

Fabric manipulation, garment production automation, robotic handling systems.

Cable-Driven Robotics

Parallel robots, vine robots, modeling and control of cable-driven systems.

AI & Machine Learning

Deep learning, imitation learning, reinforcement learning for robotic control.

Current Research

CASREx: Cable-driven Arm Soft Re-configurable Exoskeleton
Marie Skłodowska-Curie Fellowship Project
Imperial College London | Nov 2025 - Current

Developing innovative cable-driven soft exoskeleton systems for muscle impairment rehabilitation, combining advanced control systems with soft robotics principles.

Employment History

Marie Skłodowska-Curie Postdoctoral Fellow *Nov 2025 - Current*
Dyson School of Engineering, Imperial College London
Supervisor: Prof. Thrishantha Nanayakkara
Project: CASREx - Cable-driven Arm Soft Re-configurable Exoskeleton for Muscle Impairment Rehabilitation

Senior Research Engineer - Control Systems *May 2025 - Oct 2025*
Center for Transformative Garment Production (TransGP)
Supervisor: Prof. Kazuhiro Kosuge
Project: Physics-based Cloth Manipulation with policy generated from imitation learning

- Led multidisciplinary team developing high-performance models for fabric handling and folding
- Investigated feasibility and oversaw development of robotic systems for fabric manipulation

- Translated industrial requirements into research deliverables
- Mentored 3 PhD students

Postdoctoral Fellow *Jul 2024 - Apr 2025*
Center for Transformative Garment Production (TransGP)
Supervisor: Prof. Kazuhiro Kosuge

Visiting Research Associate *Jul 2024 - Oct 2025*
Department of Electrical and Electronic Engineering, Hong Kong University (HKU)

Postdoctoral Fellow *Mar 2021 - Jun 2024*
Department of Mechanical and Automation, The Chinese University of Hong Kong
Supervisor: Prof. Darwin Lau
Projects:
- Modeling and control of cable-driven robots with cable wrapping around obstacles and links
- Design of a cable-driven growing vine robot for safer false ceiling inspections

Responsibilities:
- Conducted independent and collaborative research
- Wrote research articles, proposals, and technical reports
- Mentored undergraduate and postgraduate students
- Delivered lectures for MAEG5090 Topics in Robotics

Visiting Postdoctoral Fellow *Oct 2021 - Jan 2022*
Laboratoire des Sciences du Numérique de Nantes (LS2N), École Centrale de Nantes
Supervisors: Prof. Stephane Caro and Prof. Darwin Lau
Project: Iterative-learning control of cable-driven parallel robot

Graduate Teaching Assistant *2017 - 2020*
The University of Auckland

Courses: MECHENG 706, MECHENG 306, ENGGEN 115, ENGGEN 131
- Supervised undergraduate students on design projects
- Delivered tutorials, workshops, and drop-in clinics
- Managed laboratory sessions and coordinated TA activities

Lecturer (Assistant Professor Grade-1) *2013 - 2016*
School of Electrical, Electronics and Communication Engineering, Galgotia's University

- Delivered lectures for undergraduate and postgraduate courses
- Developed teaching materials and laboratory sessions
- Supervised final year undergraduate projects

Education

Ph.D., Mechatronics Engineering *2016 - 2021*
Department of Mechanical and Mechatronics Engineering, The University of Auckland

Thesis: *Robotic Soft Esophagus Design, Modelling, and Control for Endoprosthetic Stent Testing and Food Swallow Investigation*

M.Tech, Systems and Control *2011 - 2013*
Department of Electrical Engineering, Indian Institute of Technology (IIT) Roorkee

Dissertation: *Non-Linear Predictive Control Model using Relevance Vector Machine*
GPA: 8.4 / 10.0

B.Tech, Electronics and Communication Engineering *2004 - 2010*
North Eastern Regional Institute of Science and Technology (NERIST)
Project: *Design and Synthesis of a Sixth Order Tow Thomas Bi-quad filter*
GPA: 9.1 / 10.0

Technical Skills

Programming Languages

Python, MATLAB, C/C++, LabVIEW, Assembly

AI & ML Frameworks

PyTorch, TensorFlow, Gym, Blender

Robotics & Control

ROS, MATLAB/Simulink, Control Systems, Path Planning

CAD & Design

SOLIDWORKS, Inventor, Blender, Inkscape

Hardware

Raspberry Pi, Arduino, myRIO, 8051

Tools & Others

Git, LaTeX, Lightroom, Linux

Languages

English (Fluent), Hindi (Native)

Selected Publications

15+ peer-reviewed publications in international journals and conferences

Modeling and Control of Cable-Driven Robots with Cable Wrapping
D. Bhattacharya, D. Lau, et al.
IEEE Transactions on Robotics

Design of Cable-Driven Growing Vine Robot for Ceiling Inspection
D. Bhattacharya, D. Lau, et al.
IEEE/ASME International Conference on Advanced Intelligent Mechatronics

Robotic Soft Esophagus for Stent Testing Applications
D. Bhattacharya, P. Xu, et al.
Journal of Medical Devices

Iterative Learning Control for Cable-Driven Parallel Robots
D. Bhattacharya, S. Caro, D. Lau
Mechanism and Machine Theory

Physics-based Cloth Manipulation with Imitation Learning
D. Bhattacharya, K. Kosuge, et al.
IEEE International Conference on Robotics and Automation (ICRA)

For complete list of publications, please visit my portfolio website