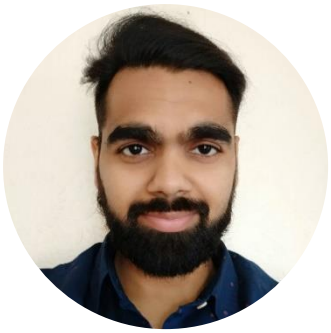

KARTIKEYA WALIA

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8 Bridgnorth Drive, Clifton, Nottingham NG11 8DU, UK

Sex Male | Date of birth 04/01/1996 | Nationality Indian

WORK EXPERIENCE

Jan 2021 – Present

Hourly Paid Lecturer

Department of Engineering, School of Science and Technology, Nottingham Trent University, UK

- Demonstration- Lab Sessions
- Seminar Sessions
- Marking

Oct 2018 – Dec 2019

Additive Manufacturing Engineer

Novabeans Prototyping Labs LLP, Gurugram, India

- Application Solutions and Prototyping Services
- Printer Diagnostics and Repair (FDM, SLA, SLS)

Aug 2018 – Sept 2019

Lego Instructor

Brain Games, Delhi, India

- Mentor/Coach - Lego Mindstorms National Championship

Jan 2018 – Jun 2019

Visiting Researcher Student

Department of Engineering, School of Science and Technology, Nottingham Trent University, UK

- Study: Effect of backrest angle and vehicle autonomy on driver discomfort (in collaboration with Bridgestone, Japan)
- Development of a driving simulation rig

Aug 2016 – Dec 2017

Design and Prototyping Intern

Design and Innovation Centre, Panjab University, India

- Development of Innovative Technologies for Medical Restoration (Craniofacial Implant and Bite Force Device)
- Development of a low-cost dual extrusion FDM 3D Printer
- Development of an in-house filament extrusion system for recycling of 3D printed waste.

May 2016 – Jul 2017

3D Printing and Application Intern

Altem Technologies, Bengaluru, India

- FDM and PolyJet 3D printing
- Working in collaboration with Stratasys, India
- 3D CAD and Structural Analysis

EDUCATION

Jan 2020 – Present

Post Graduate Research (Ph.D.)

Department of Engineering, School of Science and Technology, Nottingham Trent University, UK. Additive manufacturing for Modular Robotics System Design (PepsiCo)

Aug 2014 – Jul 2018

Bachelor of Engineering (B.E.)

University Institute of Engineering Technology, Panjab University, India. Mechanical Engineering with Honours (8.46/10 CGPA)

RESEARCH

Grants

Early Career Researcher Placement Scheme, Connected Everything Network, EPSRC funded, 2022

Patent Applications

Walia, K., Breedon, P. (2023). Generatively designed 3DoF Spherical Parallel Manipulator with integrated actuators.

Walia, K., Breedon, P. (2023). A Quasi Direct Drive Herringbone Transmission with Crenel and Merlon feature modular flange connector.

Publications

Walia, K., Khan, A., & Breedon, P. (2021). "The generative design process for robotic design applications." Journal of Additive Manufacturing Technologies (Citations: 1)

Walia, K., Khan, A., & Breedon, P. (2021). "Polymer-based additive manufacturing: process optimisation for low-cost industrial robotics manufacture." Polymers (Citations: 6)

Mansfield, N. J., Walia, K., & Singh, A. (2020). Driver seat comfort for level 3-4 autonomous vehicles. Work. (Citations: 4)

Jindal, P., Worcester, F., Walia, K., Gupta, A., & Breedon, P. (2019). Finite element analysis of titanium alloy-graphene based mandible plate. *Computer methods in biomechanics and biomedical engineering*. (Citations: 7)

Gill, D. K., Walia, K., Rawat, A., Bajaj, D., Gupta, V. K., Gupta, A., ... & Jindal, P. (2018). 3D modelling and printing of craniofacial implant template. *Rapid Prototyping Journal* (Citations: 11)

Conferences

A Modular and Reusable Industrial Robotic System, Strategic Research Themes Conference NTU 2023, Nottingham, UK

A low-cost reconfigurable industrial robot design utilising additively manufactured components, IROS 2022, Kyoto, Japan

ROS enabling Modular Robotic Systems, ROSCon 2022, Kyoto, Japan

Modular and Reusable Industrial Robotic Systems utilising Additively Manufactured Components, Connected Everything Conference 2022, Liverpool, UK (Best Poster Award)

The Generative Design Process for Robotic Design Applications, Additive Manufacturing Conference 2021, Istanbul, Turkey

Additive Manufacturing for Modular Robotics System Design, PGR STAR Conference NTU 2021, Nottingham UK (First Position)

TECHNICAL SKILLS

3D Printing	●●●●●	ROS and ROS 2	●●●●○
3D Scanning	●●●●○	C/C++	●●○○○
CAD (F360, SW and SpaceClaim)	●●●●●	XML	●●●●○
FEA (Ansys, HyperMesh and LSDyna)	●●●●○	HTML and CSS	●●●●○
Generative Design	●●●●○	Unity	●●●○○
Embedded C	●●●○○	SPSS	●●●○○
Python	●●●○○	Adobe Illustrator	●●●○○
MATLAB and Simulink	●●●●○	Adobe Premiere Pro	●●●●○

** Competence rating based on self-assessment (scale from 1 to 5)*

TRAINING AND CERTIFICATIONS

Jan 2022	IEEE RAS Seasonal School on reproducible research, performance evaluation and benchmarking in robotics (Online)
Jun 2021	RARUK Automation/ Universal Robot Core training, Universal Robots Academy, RARUK, Shefford, UK
May 2021	Teacher's Training for PGRs (TTPGR), NTU

Portfolio: https://kartikeyawalia.github.io/