Radhika Gupta

radhikagupta1378@gmail.com

born 7 March 2000 | British | LinkedIn | +44 7534 790 867

speaks English (native), Hindi (native), German (B1)

Education

2018 – 2022 **BA Hons & MEng | Engineering | University of Cambridge**
- Achieved a **first-class** honors degree with **distinction**.
- Sir George Nelson Prize for the **highest distinction** in applied mechanics among a cohort of 260 students.

2016 – 2018 **A-levels | 4 A*s**
- Maths, Further Maths, Physics, Graphic Products

2014 – 2016 **GCSEs | 13 A*s**

Work Experience

2023/07 – pres **Research Associate | Univeristy of Cambridge, CEB**
- Leading the development of a high-performance prosthetic polymer annuloplasty device to ISO 5910, in collaboration with Professor Raimondo Ascione
- Funded by the Wellcome Developing Concept Fund.
- **Reduced design cycle time by approximately 90%** by adeptly employing 3D printing for rapid prototyping

2022/07 – pres **Biomechanical Engineering Researcher | CamBris Cardiac**
- Advancing the design of a novel prosthetic polymer heart valve to ISO 5840.
- Collaborated closely with Professor Raimondo Ascione, integrating clinical insights and advice into the design process.
- Leveraged advanced CAD techniques for model creation and injection mould design (Solidworks, Rhino, Fusion).
- Applied sophisticated finite element methods for fatigue life prediction (Abaqus, MATLAB, Python, ImageJ).
- Preparing for **submission to Biomaterials Science**.

2021/07 – 2021/09 **Biomedical Engineer Intern | University of Cambridge**
- Selected for a **project scholarship** from among university-wide applicants.
- Characterised biofilm growth and spatial-temporal bioluminescence patterns through image analysis (ImageJ, python) [github]
- Simulated biofilm growth stresses using a mechanical model in collaboration with D. M. Fernandez.

2020/06 – 2020/09 **Mechanical Engineer Intern | Nature Preserve**
- Developed a food pasteurization plant, including a comprehensive mechanical flow diagram (Adobe Illustrator), **contributing to a subsequent patent application**.

Projects

2021 – 2022 **Biomechanics Master Thesis | Knee Stabilization Surgery Fracture Prevention**
- Conducted strain-based finite element analysis for fracture prediction (Abaqus).
- **Improved upon literature methods** to develop a graded finite element meshing algorithm in a (Fusion 360) dual material tibia model.
- Provided **key contributions to research** by identifying an optimal surgical cut area that is **80% more concise** than current literature.
- Prize for **Best Project Presentation** (PowerPoint, Affinity Designer).
- Preparing for **submission to KSSTA**.

2021 – 2022

Autoinhaler Test Machine Design | Automation Engineering

- Conceptualized an automated breath-activated inhaler testing machine, integrating diverse mechanical components within a restricted space.
- Generated comprehensive mechanical assembly and process flow diagrams, elucidating the machine's step-by-step functionality.

2021 – 2022

Near Infrared Spectroscopy (NIRS) for Concussion Detection

- Devised a NIRS headpiece for immediate sports-related concussion detection and implementation plan based on a holistic systems design approach.
- Solicited to create infographics for the Neuro Optics Lab, Cambridge, following **exceptional performance in design work**.

2021 (3 days)

Bioengineering Hackathon | Love of the Game

- Led a team of four to design an on-pitch concussion detection application providing quick diagnosis by non-medical professions for use in junior rugby.
- Concept was well received and **further pursued** by our hackathon team mentors for practical implementation.

2019 – 2020

Automated Robot Mechanics | Mechatronics

- Directed a six-member team in building an object-sorting robot.
- Conceived a **unique single-motor design**, diverging from traditional dual-motor designs.
- Executed extensive CAD modelling of all robotic components and assemblies, generating **industry-standard mechanical drawings** (Solidworks).

Service and Leadership Roles

2023

Structures Module Supervisor for nine Chemical Engineering undergraduate students.

- Achieved a **100% satisfaction rate (5/5)** from student feedback survey.

2022 – 2023

MEng Thesis Technical Supervisor for two students in biomedical engineering.

- Mentored students in computational modeling using Abaqus finite element software to predict heart valve mechanics.
- Guided students in developing a MATLAB script for 2D to 3D geometry mapping, enhancing their analytical capabilities and understanding of complex geometries.

2022 – 2023

MATLAB Supervisor and Marker for Chemical Engineering Computing Skills module.

- Coached students in mastering MATLAB for graph visualization and function setup, providing insights into effective programming practices, and subsequently evaluated their work for accuracy and proficiency.

2020 – 2021

Digital Content Designer for the Cambridge University Engineering Society.

- Produced engaging event posters, themed logos, and sponsorship booklets for companies (Illustrator, Photoshop, InDesign).
- Achieved a **50% faster content production rate** compared to previous candidates, doubling Content Team's efficiency.

2016 – 2017

Team leader on the Inspiring Engineers Scheme in collaboration with Mott Macdonald.

- Built a mobile hydraulic crane prototype designed to help rebuild a flood-ridden town.
- CREST Gold Award for an original contribution to a STEM field of study.
- Prize for **best overall project**.

Other interests

- Badminton (CUBaC Varsity, Colours Award).
- Performing arts (Grade 8 distinction in classical singing, CU Show Choir Choreographer).
- Hiking (Gold DoE Award, World Challenge Competitor, Morocco).

References

- *CamBris Project Director*: Prof. Geoffrey Moggridge
- *CamBris Research Adviser*: Dr. Joanna Stasiak
- *CamBris Mentor*: Dr. Marta Serrani
- *MEng Supervisor*: Prof. Michael Sutcliffe
- *MEng Director of Studies*: Prof. Andrea Ferrari