

# Asad Raja

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## Education

### Imperial College London

Oct 2017 – Jul 2021

#### Master of Engineering (MEng), Mechanical Engineering

- **Achieved First-Class Honors (75.6%):** 1<sup>st</sup> year (71.6%), 2<sup>nd</sup> year (75.2%), 3<sup>rd</sup> year (76.6%), 4<sup>th</sup> year (74.9%)

#### Modules:

- Mathematics, Computing, Machine Learning, Mechatronics, Stress Analysis, Mechanics, Dynamics, Machine System Dynamics, Materials, Finite Element Analysis, Fluid Mechanics, Applications of Fluid Mechanics, Thermodynamics, Heat Transfer, Aircraft Engine Technology, Entrepreneurship, Business Economics, Business Management, Professional Engineering Skills

### Sutton Grammar School

Sep 2010 – Jul 2017

- **A-levels:** Mathematics – **A\***; Further Mathematics – **A\***; Physics – **A\***
- **Cambridge Pre-University:** Economics – **Distinction 3**; Global Perspectives – **Distinction 2**
- **GCSEs:** 10 A\*s and 2 As
- **Senior Prefect** – Selected to be on a Senior Prefect team to undertake daily duties and maintain a positive school environment by coordinating other prefects and liaising with staff
- **Magazine Editor** – Senior Editor of the annual publication – ‘*The Suttonian*’

## Project Work

#### **‘Topology Optimisation of Lattice Structure Knee Implants’ – Masters’ Project – (75%)**

Used MATLAB to build a simulation for optimising the density distribution of additive manufactured, lattice structure titanium knee implant components to improve bone remodeling whilst preventing failure

#### **Design, Manufacture and Test Project – 3<sup>rd</sup> Year Group Project – Project Manager – (78%)**

Created the chassis and steering of a high efficiency electric vehicle to compete in Shell Eco-Marathon 2020

#### **‘Nanofuels for the Control of Engine Emissions’ – Literature Review Project – (85%)**

Produced a literature review paper assessing the potential of nanoparticle additives in reducing harmful engine emissions to aid the work of senior researchers

#### **Design and Manufacture of a Miniature Motor Car – 2<sup>nd</sup> Year Group Project – (70%)**

#### **Design of a Motorised Hand-Held Key Turner for Arthritic People – 2<sup>nd</sup> Year ‘Design Week’ Project – (72%)**

#### **Design of the Drive Transmission of a Uniwheel Transporter – 1<sup>st</sup> Year Project – (68%)**

## Experience

### Imperial College London – ‘EDI in Engineering’ Module Creator

Jun 2021 – Aug 2021

- Designed and organised a new module for the Mechanical Engineering department at Imperial, focused on equality, diversity, and inclusion (EDI) issues in engineering
- Planned the module structure and devised a detail module specification
- Met with researchers and EDI initiative coordinators to iteratively review and advise the module design
- Gathered teaching resources, established guest lecturers, and developed an EDI initiative proposal list for module’s project component
- Developed surveys for students, staff, alumni, and schools and analysed results to collate opinions

### Dyson Technology Ltd – Environmental Control New Product Development Intern

Jul 2020 – Sep 2020

- Developed forming and fixing processes for the air outlet duct mesh of a new air purifier through prototyping and testing – scheme was communicated to the manufacturing team and integrated into a pre-production rig
- Investigated a novel grade of HEPA filter media to compare with in-production filter media and disproved supplier’s claim of reduced pressure drops, establishing next steps for filter media re-development to achieve claimed wins
- Conducted manual and robot-arm cycle testing of a new wearable air purifier’s extension-retraction mechanism to identify headband material with the best wear performance

**Imperial College London – Software Developer****Jul 2019 – Sep 2019**

- Created an interactive online platform using HTML, CSS, and JavaScript where students can receive immediate feedback and part-by-part solutions for Fluid Mechanics tutorial sheets
- Implemented feedback from alpha and beta testing to enhance its user interface – 100% of the students tested stated that the final platform would improve their learning experience

**HSBC – Global Banking and Markets – Spring Insight Programme****Apr 2019**

- Gained an insight into investment banking through shadowing and taking part in interactive activities
- Delivered a presentation to the spring week cohort analysing Pret A Manger's merger with JAB

**Adecco – Interim Crowd Control Manager****Aug 2017 – Sep 2017**

- Led a team of eight crowd control workers at New Malden train station to maintain smooth operation during a period of heavy disruption due to the Waterloo Upgrade
- Reassured disgruntled commuters, whilst coordinating my team to focus on high risk areas

**Mott Macdonald – Dams and Reservoirs Team Work Experience Placement****Feb 2016**

- Evaluated the feasibility of a hydropower scheme in Cairngorms National Nature Reserve
- Delivered a report and presentation to senior engineers in the dams and reservoirs team

**Roles****'New Wave Magazine' – Music Writer****Jul 2021 – Present**

- Weekly contributor to online magazine

**Imperial's Student Newspaper – 'Felix' – Head Music Editor****Jan 2018 – Jun 2021**

- Leading an editorial team to write and edit content and layout page designs, meeting weekly deadlines
- Also responsible for recruiting additional writers and editors

**Imperial Hip Hop Society – Founder and President****Jun 2019 – Jun 2021**

- Founder and president of the social society, running since June 2019
- Organised weekly socials and discounted tickets to London events for members

**Imperial Mechanical Engineering Mentoring****Nov 2020 – May 2021**

- Mentored first year students on my course, meeting with a group on a fortnightly basis to provide academic support and pastoral care

**Young Enterprise Scheme – 'Pinpoint Technologies' – Managing Director****Nov 2016 – Jul 2017**

- Head of a 25-person team, selling bluetooth item-trackers
- Company was awarded 2<sup>nd</sup> place at the Young Enterprise UK National Finals out of 1,700 entries and achieved a net profit of £2,760
- Key responsibilities included developing a business plan, coordinating team and presenting at competition rounds
- Organised a fundraising dinner event which generated a £1,623 net profit

**GCSE Maths Mentor****Sept 2016 – May 2017**

- Tutored three GCSE maths students for one year – each achieved an A\* grade

**Other Skills and Interests****Coding** – Strong MATLAB and Python and self-taught HTML, CSS and JavaScript abilities**Languages** – Urdu (conversational)**Creative Writing**

- Took a creative writing 'horizons' module in third year at Imperial (73.3%)
- Short story, 'Home / Screen', was published in Guts Publishing's latest anthology
- Stage play, 'Rhineland Bastards', was longlisted for National Theatre's 'New Views' competition

**Blogging** – Host a personal music-centered blog at [www.asadraja.net](http://www.asadraja.net)