



Dr. Umar Hossain

Mechanical engineer & designer, with doctorate level expertise in additive manufacturing from Imperial College London. Specialising in the frontiers of CAD and computational design.

32 Ridgeview Road,
Whetstone, London, N20 0HJ
+44 (0) 7402 675 847
umar@umarhossain.co.uk
umarhossain.co.uk

EDUCATION

PhD in additive manufacturing for orthopaedic implants at Imperial College London

Used powder bed fusion methods to create porous lattice structures with custom mechanical isotropy, as part of the Imperial Biomechanics group. Research sponsored by Renishaw plc.

Oct 2016 –
Sep 2020

Design, Art and Creativity tutor, Mechanical Engineering

Helped lead a 3rd and 4th year undergraduate MEng level course to teach design thinking, as well as provide logistics and software knowledge. Required the provision of critical feedback for students for their individual development.

Oct 2016 –
Jun 2018

Communication in Design tutor, Dyson School of Design Engineering

Oct 2019

MEng Mechanical Engineering at Imperial College London

First Class Honours. Courses included Mathematics, Thermofluids, Stress Analysis, Materials, Mechatronics, Embedded C for Microcontrollers, Finite Element Analysis, Machine System Dynamics and System Design and Optimisation.

Oct 2012 –
Jun 2016

EMPLOYMENT

Senior Design Engineer at Alloyed

Alloyed delivers next generation performance for metal components. I am using my experience in cutting edge powder bed fusion technology to create world-class AM parts. Working on projects in industries including aerospace and electronics. I am heavily involved in Meshworks, the medical business unit of Alloyed. Meshworks designs and manufactures patient-specific implants for bone reconstruction surgery.

Sep 2020 –
present

Student Fusion Catalyst at Autodesk

Autodesk Fusion 360 Imperial ambassador. Established and taught a 4-week crash course in the program to be run through the Imperial College Advanced Hackspace, accessible by any Imperial students or staff. Equipped over 160 students with the skills to do 3D modelling.

Jul 2016 –
Feb 2018

Digital Catalyst, Future of British Manufacturing Initiative

Working with British SMEs to consult on new software/hardware workflows.

Aug 2019

Design Assistant at Sensible Object, now Niantic London

Designed multiple pieces for the physical/digital hybrid game Beasts of Balance. Involved rapid prototyping, DFM (injection moulding) and playtesting. After a successful Kickstarter, the game is now available in the Apple Store, and has won multiple industry awards.

Aug 2015 –
Oct 2015

EXPERIENCE

Makers with a Mission Residency, Makerversity

The Future of Walking concept shoe project exhibited at Somerset House as a winner in the Tools for Change Climate Hack, and The Future Laboratory for Material Futures at LDF 2018.

May 2018 –
Dec 2020

Imperial College Advanced Hackspace and Makerspace

Built a ceramic 3D printer with the ICAH Project Boost Grant award. Exhibited at the ICAH Demo Day. Help to teach CAD and design skills as part of the Maker Challenge student outreach program for 14-18 year olds and Hackspace Horizons courses.

Jul 2016 –
Feb 2018

PUBLICATIONS

- Hossain, U., Ghouse, S., Nai, K. and Jeffers, J.R., 2021. Controlling and testing anisotropy in additively manufactured stochastic structures. *Additive Manufacturing*, 39, p.101849.
- Hossain, U., Ghouse, S., Nai, K. and Jeffers, J., 2021. Mechanical and morphological properties of additively manufactured SS316L and Ti6Al4V micro-struts as a function of build angle. *Additive Manufacturing*, p.102050.

SKILLS AND INTERESTS

Technical:

Teaching level expertise of SolidWorks, Rhino 3D, Grasshopper, Fusion 360, SketchUp, MATLAB, Microsoft Office and Adobe Creative Suite. Intermediate knowledge of Blender, Arduino, C, Processing, HTML and CSS.

Interests:

Music: listening, playing, composition and production. Proficient at the keyboard and sometimes performs small gigs, busking or recording. Created an internet radio station with friends to curate favourite artists. Hope to incorporate music into more audio-visual experiments.

Languages:

Intermediate knowledge of French.