Joshua Keenan

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Education

MEng(Hons) Mechanical Engineering (Predicted First) - University of Bath **2021-2026**

Relevant Modules: *Maths Modules Average (78%), Group Business Design Project (71%), Structural Mechanics (70%), Modelling Techniques (74%), Fluid Dynamics (75%)*

A-Levels & GCSEs - Ivybridge Community College **2014-2021**

A-Levels: Physics (A*), Maths (A*), Further Maths (A), EPQ on the viability of electric aircraft (A*)
GCSE: 11 GCSEs grades 5-9, including maths and physics at grade 9

Relevant Experience

Mechanical Lead - Team Bath Heart **09/2024 - 12/2025**

- Mechanical team lead for a novel low-shear pump for a total artificial heart
- Leadership and planning experience, including chairing weekly review meetings to aid creation of specifications, directing roadmap, performing design reviews and mentoring of 10+ students, resulting in the team receiving recognition at Engineering Talent Awards “University Engineering Team of the Year” (Winner, 2025)
- Parametric surface modelling of compliant artificial ventricles; optimised for haemodynamics, deformation, and manufacturability via lost-wax casting.
- Reduced the wall shear forces within the new design of artificial ventricles by 47% bringing it below a key 150 Pa threshold for shear-induced blood cell damage.
- Designed three-part moulds and a vacuum casting process for polyurethane ventricles using sacrificial wax tooling.
- Performed explicit Finite Element Analysis (FEA) of artificial ventricle compression in LS-DYNA to identify and mitigate undesirable deformation.
- Optimisation of design for DFM and DFA before final build of prototype.
- Co-presented an oral presentation of simulation-led design of Team Bath Heart Total Artificial Heart at the European in Silico Pharmaceutical & Healthcare Summit (July 2025, University College London) and will be presenting at the International Society of Mechanical Circulatory Support (December 2025, Vienna)
- Secured LS-DYNA licences via sponsorship agreement and coordinated expert training for 10+ users, enabling significant advancement in team simulation capability.
- STEM Outreach activities, including helping schoolchildren engage in engineering.

Mechanical Design Engineer - Chess Dynamics **08/2023 - 08/2024**

- Experience in full design life cycle from initial concept design and specifications through to manufacture, build, testing, customer shipment, and field support, ensuring strict quality and reliability standards.

- Produced hundreds of complex drawings for multi-featured parts and top-level assemblies to BS 8888 with GD&T; supported build and test through to shipment and field support.
- Performed root-cause analysis and report creation focused on identification of the fault behind erroneous readings in customer systems. This involved measurement of the system's axis movement under specified sea-state loads. Then, relating this movement to rotary encoder measurements enabled quantification of the angular error to thousandths of a degree, driving updates to design practices for future systems.
- Thermally analysed and certified sealed laser rangefinder enclosures for harsh environments. Using IR thermography to validate heat paths, optimise cooling and achieved temperature performance targets. Resulting in the design being released to production and shipped to customers.
- Collaborated within focused, fast-paced engineering teams and contributed directly to product innovation and delivery

Technical Skills

CAD: SolidWorks (Advanced), Fusion 360 (Advanced), Autodesk Inventor (Intermediate); Parametric solid & surface modelling; dynamic assemblies; BS8888 drawings; GD&T

Simulations: FEA (Ansys Mechanical, LS-DYNA), CFD (Ansys CFX and Ansys Fluent)

Microsoft Office: Experience with Microsoft Office suite of programs

Programming/Tools: MATLAB (modelling & data visualisation), Python (basic)

Manufacture/Test: 3D printing (FDM & SLA), vacuum cast moulding techniques

Additional Experiences

Olympus Plymouth (Algram) **2022**

- Observed medical device/aeronautical parts development and injection moulding best practices in a regulated environment.

Plessey Semiconductors **2018**

- Exposure to micro-LED (GaN-on-Si) fabrication, cleanroom protocols, and device testing/verification.

Volunteer - RNIB Transcription Centre **2016 - 2020**

- Assisted in processing over 25,000 audiobooks for visually impaired users.
- Developed teamwork and appreciation of designing for accessibility

Additional Interests

Sports: Represented the University of Bath in Ultimate Frisbee, long-term village football team member (12 years), recreational tennis, squash, and running.

Photography: Passion for both film and digital photography.

Professional Affiliations: Student affiliate of IMechE