

Mayli Jones

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Personal Statement

Design Engineering MEng student at Imperial College London, entering my third year this October, with hands-on experience developing products from user research through to tested physical prototypes. I'm particularly interested in design psychology, how people interact with products in expected and unexpected ways, and how that understanding can shape better physical design. Curious, adaptable and collaborative, I thrive on unfamiliar challenges and use direct user feedback to iterate toward practical, well-considered design solutions.

Education

MEng Design Engineering, Imperial College London 2023 – Present
Year 2: 74% Year 1: 67% London

Experience

Mechanics Team Member - Shell Eco-marathon, Imperial College London 2025 – Present
Helped design an energy-efficient vehicle for international competition, focused on rear frame design - iterating geometry and material selection using FEA in SolidWorks, and contributing to physical assembly and testing.

GCSE/A-Level Tutor 2023 – Present
One-to-one tuition across maths, physics, chemistry, biology, English, and Mandarin, supporting students from 11+/13+ entrance exams through to GCSE and A-level.

Volunteer - British Heart Foundation 2022 – 2024
Provided customer service, operated the till and supported the day-to-day running of a busy charity shop.

Work Experience - BWB Consulting 2023
Shadowed engineers on live consultancy projects, gaining exposure to design workflows and sustainability considerations.

Awards

1st Place UK, 2nd Overall - (Battery Electric Prototype), Shell Eco-marathon
Competed as part of Imperial College London's Eco-marathon team in the Battery Electric Prototype category, placing 1st in the UK and 2nd overall, and setting a new UK record of 964.0 km/kWh.

Best Company Inner East London, Young Enterprise
Served as Managing Director of a Young Enterprise team, leading company strategy, operations and team management, winning the Inner East London Best Company award.

Projects

SwivelCut: Robotic School-Based Cutting Tool, Product Design Engineering 2026

- Co-developed a two-degree-of-freedom robotic cutting arm for secondary school DT classrooms, designing 3D-printed CAD components, gear trains and mechanical linkages, and producing technical drawings with DFMA analysis for mass manufacture.
- Conducted user research through focus groups, interviews and classroom observations with students and teachers, translating findings into design decisions across CMF, anthropometrics, ergonomics and packaging.
- Ran iterative user testing in schools and at the Great Exhibition Road Festival, refining both the physical product and user guide based on direct student and teacher feedback.

Music-Reactive Dancing Robot, *Electronics, Signals & Sensors*

2026

- Programmed a self-balancing, music-reactive robot, combining inverted-pendulum control theory with Python-based beat detection to create a playful, dancing robot that responds live to music.
- Engineered PID feedback control to maintain real-time balance and stability, translating technical robotics into an engaging, entertaining interaction.
- Integrated and tuned the electronic, sensing and control systems for a live exhibit at the 2026 Design Engineering Exhibition.

Quoridor: Web-Based Strategy Game with AI Opponent, *Coding*

2026

- Built a web-based Quoridor implementation in JavaScript, HTML and CSS, including game state management and rule enforcement for wall placement and movement.
- Implemented BFS-based pathfinding to validate wall legality in real time and calculate shortest-path distances, ensuring both players always retain a route to their goal.
- Developed a minimax AI opponent with alpha-beta pruning across three difficulty tiers, using a custom heuristic based on relative path distances and refining it through playtesting to correct early "wall-happy" behaviour.

Aircraft Seat for Young Children, *Sustainable Design Engineering*

2025

- Researched child anthropometrics and evaluated existing aircraft seating to identify gaps in comfort, safety and ergonomics for young children during air travel.
- Designed a modular seat system with adjustable components and alternative configurations, tailored to children's developmental and physical needs within aircraft dimensional and safety constraints.
- Iteratively refined the concept through user-centred evaluation, testing passenger interaction and comfort with target users in mind.

Skills

Engineering & CAD, *Onshape, Fusion 360, SolidWorks, AutoCAD, FEA and CFD (Ansys Fluent/Discovery, SolidWorks Simulation), Granta EduPack*

Mechanical & Manufacturing, *gear trains, belt drives, spring mechanisms, modular assemblies, FDM 3D printing, laser cutting, CNC machining, mechanical assembly*

Electronics & Programming, *Python, JavaScript, MATLAB, Arduino, ESP32, MicroPython, PID control, sensor and actuator integration, circuit prototyping, motor control*

Data Science & ML, *regression and classification modelling (SVR, Random Forest, logistic regression), feature engineering, hyperparameter tuning, pandas, scikit-learn*

Design Tools, *Figma, Adobe InDesign, Canva, Miro, Photoshop, LaTeX*

Project Management, *Gantt chart planning, stakeholder coordination, cross-functional team delivery*

Languages

English: Native

Chinese (Mandarin): Fluent spoken proficiency

Interests

Music Grade 8 Piano and Violin, drums, and orchestral performance	Sport Climbing, ice skating, and swimming, including open water in lakes, rivers and the sea.	Outdoor adventure Hiking, camping and seeking adventure sports like coasteering and canyoning.
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