

Aggie Liu

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Have the right to work in the UK with Student visa (valid until Oct 2027)

Aggie is a **biodesigner** trained in **industrial design**. Her practice focuses on materials, digital fabrication, and experimental manufacturing, with experience in 3D printing (FDM and filament development), prototyping, mechanical systems, and design for manufacturing (DFM). She works through iterative, research-led processes to explore bio-based and sustainable material systems, with interest in biomaterials, additive manufacturing, and cross-disciplinary R&D across design and engineering contexts.

SKILLS

TECHNICAL SKILLS

Fabrication & Engineering

SolidWorks (Simulation / Mold Design / Sheet Metal) | Rhino (Grasshopper) | Fusion 360 | Blender | KeyShot | AutoCAD | 3D printing (G-code / BambuStudio / PrusaSlicer / Ultimaker Cura / printer assembly, modification and troubleshooting) | CNC machining | Laser cutting | Multi-material prototyping (metal / wood / plastics / foam / biomaterials) | Arduino | PCB design (EDA) & soldering | Multisim

Design & Visualisation

Figma (Design / FigJam / Make) | Framer | Adobe (Ps / Ai / Pr / Id / Ae / LrC) | Spline | TouchDesigner

Programming & Tools

Notion | Cursor | VS Code (C / C++ / Cline) | Visual Basic | Unity | MATLAB | MS Office | MS Clarity

CORE COMPETENCIES

Cross-functional collaboration (design–engineering–manufacturing) | Material-driven design (bio-based / sustainable) | Rapid prototyping & iterative development | Design for manufacturing (DFM) | Systems thinking (material–process–experience) | Constraint-driven design (cost, time, feasibility) | Research-led design | Independent project ownership

LANGUAGES

English (Professional) | Mandarin (Native)

EDUCATION

MA Biodesign | Central Saint Martins, University of the Arts London

United Kingdom | Sep 2025 - Jul 2027

BEng Industrial Design | Donghua University

China | Sep 2020 - Jun 2025

Game Design | Aalto University Summer School

Finland | Aug - Sep 2023

Aquatic Biology, Marine Botany | Xiamen University

China | Jun - Aug 2023

WORK EXPERIENCE

3D Printing Specialist | Beijing PhaBuilder Biotechnology Co., Ltd

Nov - Dec 2024

- **Independently** responsible for 3D printing R&D of pure PHA filaments as the sole member of the 3D printing function, contributing to a broader cross-functional filament development effort.
- Worked directly with **on-site** polymer R&D and production teams to iterate formulations based on testing data, optimising flow behaviour, crystallisation control, and mechanical performance.
- Solved key printability challenges of pure PHA (low glass transition and crystallisation temperature) by developing stable cold-bed printing strategies.
- Established end-to-end process parameters from extrusion to printing, ensuring compatibility with commercial FDM printers and consistent filament production, enabling **scale-up and market launch** of 100% PHA filaments.

Industrial Designer | Shanghai Fablab Education Technology Co., Ltd.

Sep - Dec 2023

(College of Design and Innovation, Tongji University)

- Contributed to design and prototyping activities within a youth makerspace, focusing on **hands-on** development in 3D printing, digital fabrication, and basic electronics.
- Supported **project-based** workflows by guiding students (ages 6–10) in modelling, programming, and fabrication processes, enabling them to independently complete simple design projects.

- Explored experimental applications of low-cost hardware by modifying a discarded 3D printer through G-code adjustments and component reconfiguration, extending its functional and expressive capabilities. Co-developed and produced an interactive Christmas tree-shaped PCB integrating LEDs, microcontroller, and audio output, combining basic electronics with product-oriented design.
- Assisted in workshop delivery and content preparation, including design for **large-scale public events**.

Featured Project: "Myriad Creations - Galaxias" Workshop (Maker Faire Shanghai 2023)

- **Independently** conceived and delivered the "Myriad Creations – Galaxias" workshop for Maker Faire Shanghai 2023, defining theme, content, and overall experience design.
- Designed the end-to-end workshop system, including activity flow, booth layout, visual assets, and interactive installation, balancing engagement, feasibility, and cost constraints.
- Developed a simplified making system combining basic LED circuits with low-cost materials, translating complex concepts into an accessible hands-on experience through rapid iteration within a **one-week** timeline.
- Delivered a scalable workshop engaging **300+ participants**, achieving stable on-site execution under tight budget constraints (~£0.15/person).

RESEARCH EXPERIENCE

Leader | Prevent Knee Injury Assistive Strapping Product - A Study on Iliotibial Band Syndrome Jul 2022 - Jul 2023

- Developed a lower-limb finite element model integrating biomechanical analysis, applying surface loads to simulate muscle attachments and conducting fatigue analysis on the thigh muscles and iliotibial band during running.
- Translated analysis outcomes into the design of targeted muscle-activation patches for iliotibial band syndrome, linking simulation insights with product development.
- Evaluated product effectiveness using electromyography (EMG) and Visual Analog Scale (VAS), supporting validation of functional performance.
- Awarded **Third Prize** at the 9th China College Students' "Internet+" Innovation and Entrepreneurship Competition.

Member | Research on a Flexible Supportive Corrector for Hallux Valgus Jul 2021 - Jul 2022

- Designed a flexible-material-based hallux valgus corrector using finite element analysis and electromyographic (EMG) insights to inform biomechanical support strategies.
- Conducted EMG experiments to assess muscle fatigue, applying time-domain and frequency-domain analysis to surface EMG signals for objective performance evaluation. Validated the effectiveness of the design through quantitative biomechanical and physiological data.
- Awarded **Third Prize** in the North China Division of the New Engineering Innovation Competition.