

# CHRISTIAN

PORFOLIO

# GROSE

**About**

Hi, I'm Christian, a Master's student at Imperial College London, based in South Kensington.

I define my approach as being T-shaped; I love navigating broad solution spaces, but I'm equally at home diving deep into technical niches. My skillset spans the entire product journey, from high-level strategy and sketching to the precision of dialling in tolerances and designing PCB layouts

I'm currently putting this T shaped philosophy into practice during my Master's project, bringing together my wide experience (the crossbar!) in product development with my specialisation (the stalk) in full-stack embedded prototyping.

My journey has been shaped by collaborations with world-class teams, including designing '2050' concepts at Tsinghua University, curating with the V&A Youth Collective, and managing software projects at AirEmail.

I've really enjoyed these projects and am looking forward to what comes next!

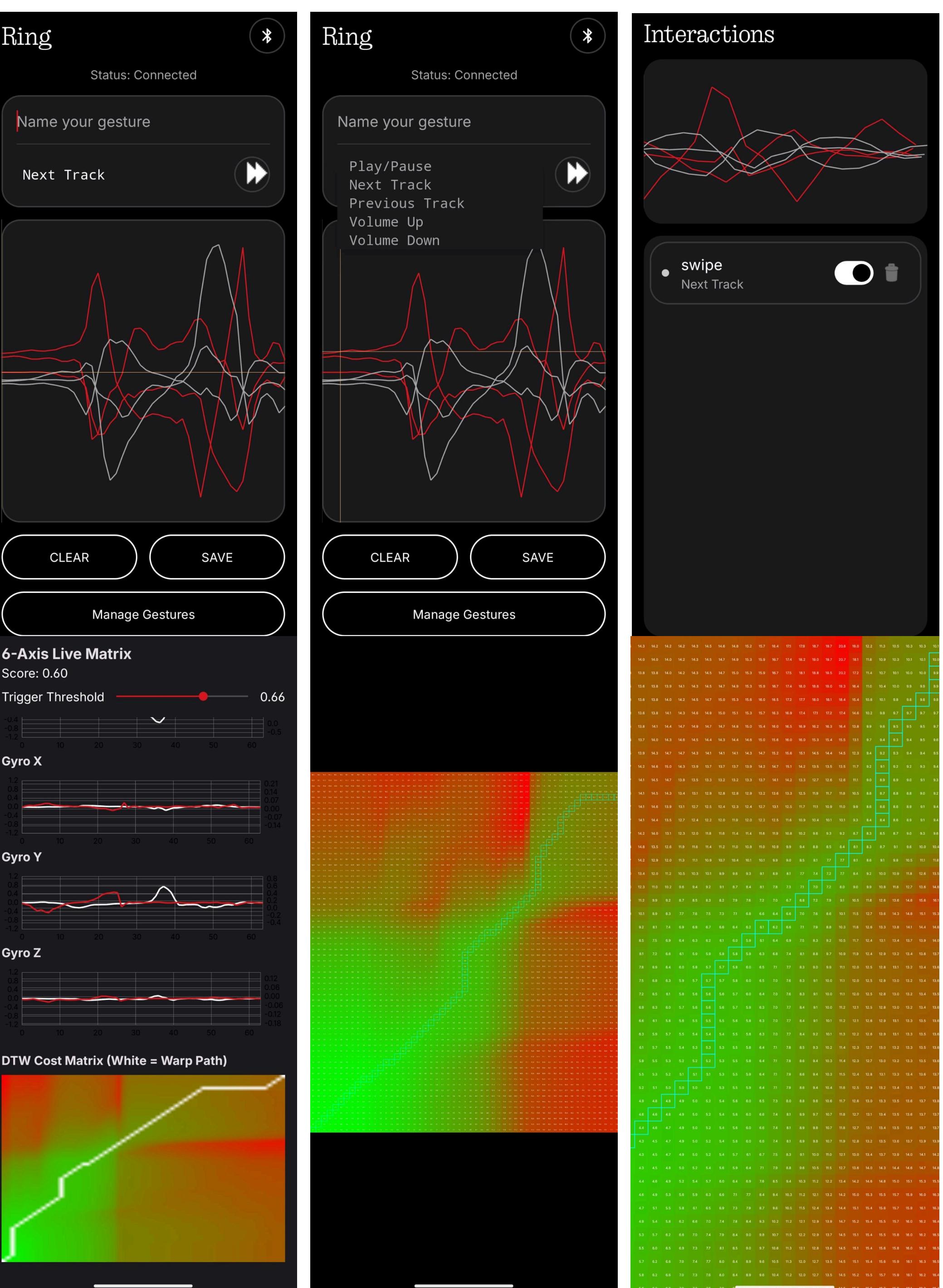
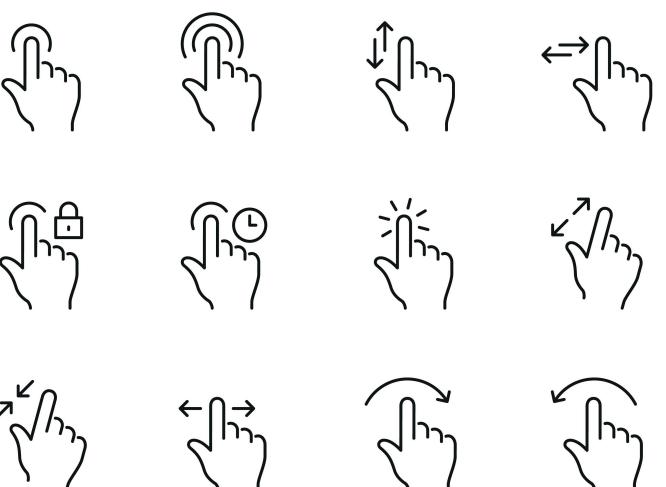
*CHRISTIAN GROSE*

# IMPERIAL



Rings are an emerging form factor within wearable technology, yet their utility is often restricted to health tracking. I developed this project to push the boundaries of wearable input, specifically focusing on gesture and touch interactions.

Through rapid engineering of a full-stack prototype, I successfully demonstrated a system where users can calibrate personal interactions via a custom app. This process yielded critical technical insights into IMU data processing, paving the way for my current work: optimising high-sample-rate recognition to capture nuanced haptic events like impacts and flick gestures.



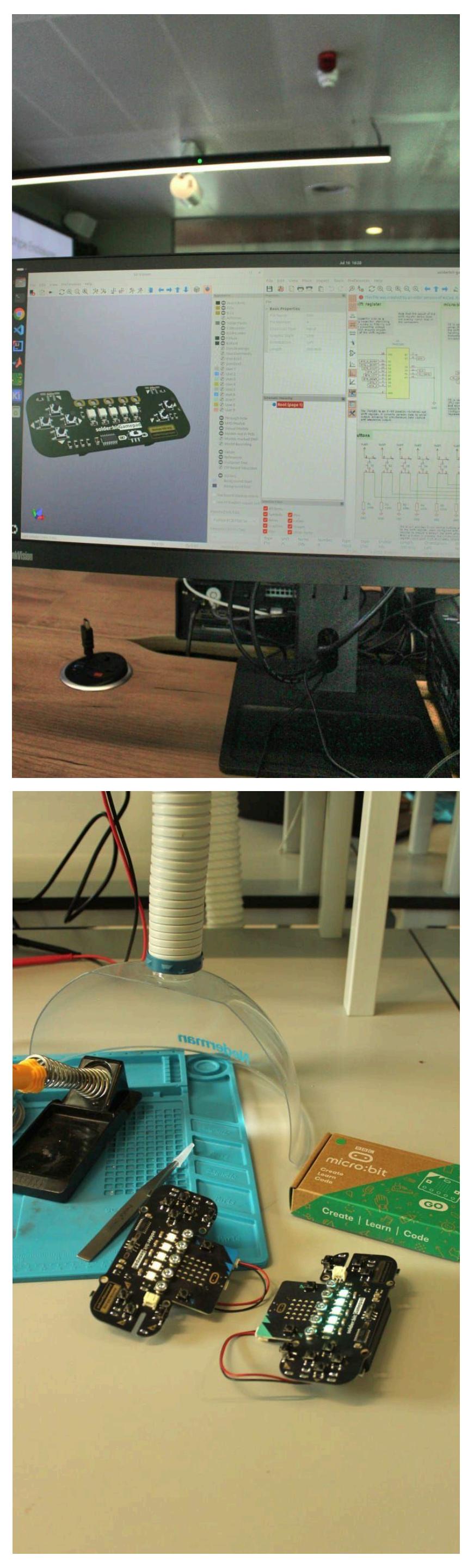
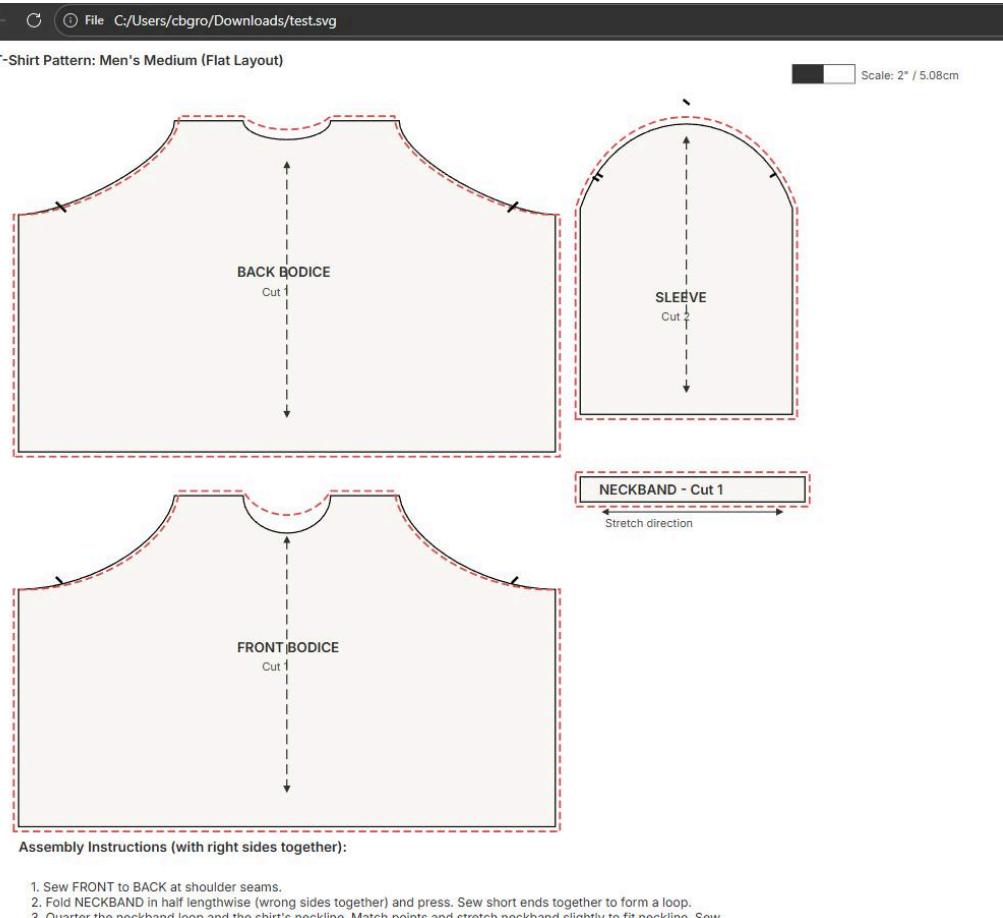
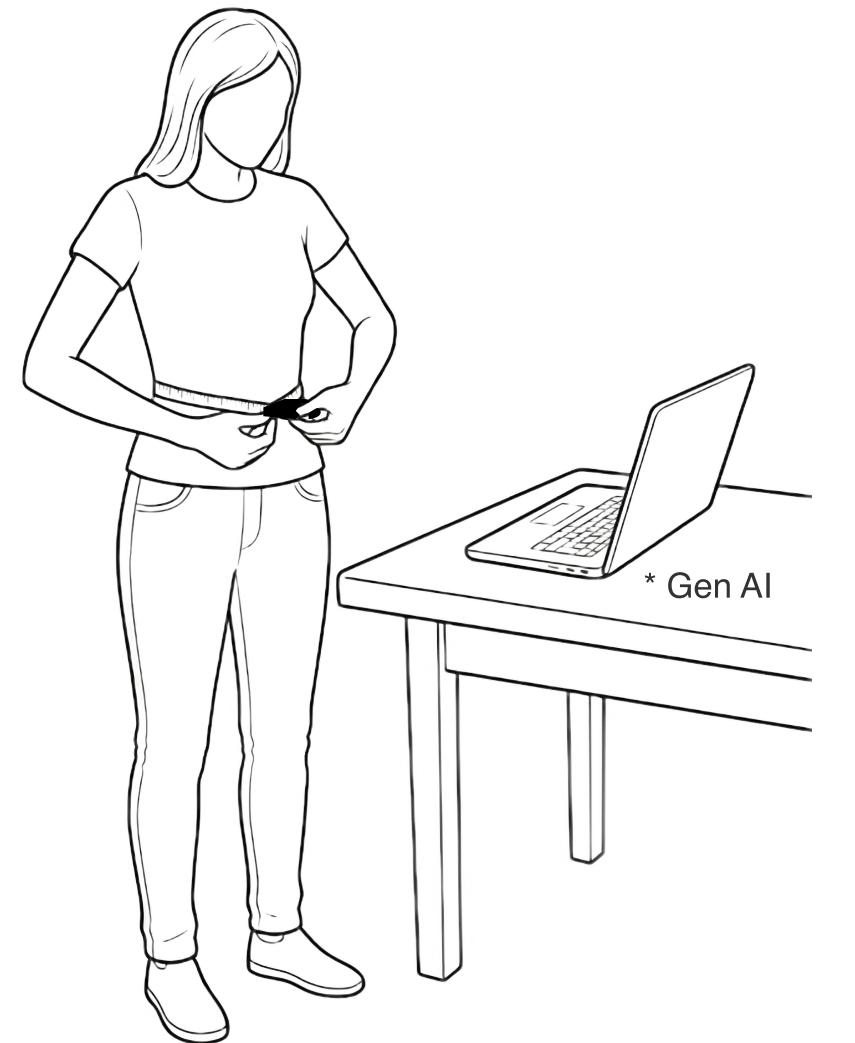
# Electronic Measuring Tape and Custom Clothing ChatBot

Pro2 Network Personal Project

This project is a hardware and software system designed to move away from standard clothing sizes in favour of a bespoke, size-agnostic approach. The hardware consists of a smart electronic hanger that functions as a connected measuring tape. I integrated Google Gemini into a prototype app to act as a conversational interface; instead of picking a size from a chart, the user describes the garment they want, and the AI guides them to take specific measurements using the electronic tape measure. To complete the process, the system generates a custom sewing pattern as an SVG file, which is ready to be laser cut and assembled into a finished garment.

This concept secured my place at the Pro2 Network Summer Session at Lancaster University, a week-long intensive program focused on PCB production and the 'long tail' of hardware devices. I used my time during the residency to develop the project further, moving the idea towards a more functional prototype whilst surrounded by experts in the field.

The program was also a significant learning period for my technical practice. Alongside developing my project, I attended workshops where I gained hands-on experience in KiCad for PCB design, SMT soldering for electronics assembly, and Onshape for mechanical modelling. By focusing on bespoke ergonomics and high-quality fit, this work aims to reduce the waste and psychological friction of traditional fashion by creating clothing that users can value for the long term.



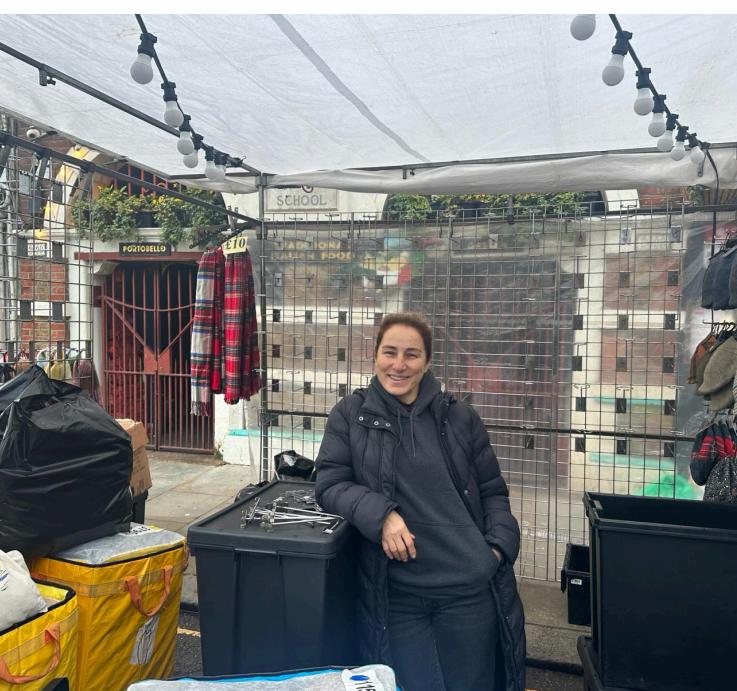
# Electric Street Market Clamp

Technical Lead

This project was part of my Industrial Design Engineering module, focusing on taking a product from conception to production plan. The brief was to create a handheld battery-operated device for an underserved community. The inspiration came from my teammate, whose aunt is a market trader and suggested this as a focus area. We conducted early morning field research at markets across London, including Portobello, Spitalfields, Columbia Road, and Borough, interviewing traders to identify their pain points.

We focused on street market clamps. If you haven't tried to open one before, it is notoriously difficult; most people have to use two hands. Many traders highlighted this as a major issue, especially as they get older.

Our four-person team developed a solution following extensive ideation. Initially, we were set on electric inflatable clamps, but after prototyping with a bike inner tube, the concept proved ineffective. We pivoted to a driven worm gear approach, similar to an adjustable spanner. The design features low-cost clips and a separate electric tool that attaches via an electromagnet to spin the internal mechanism. I led the team in producing this functional MVP, ready for evaluation in just five weeks. We took inspiration from Xiaomi, styling the packaging and product to visualize how it would look in full production.



# TASA ICoD Summer Lab

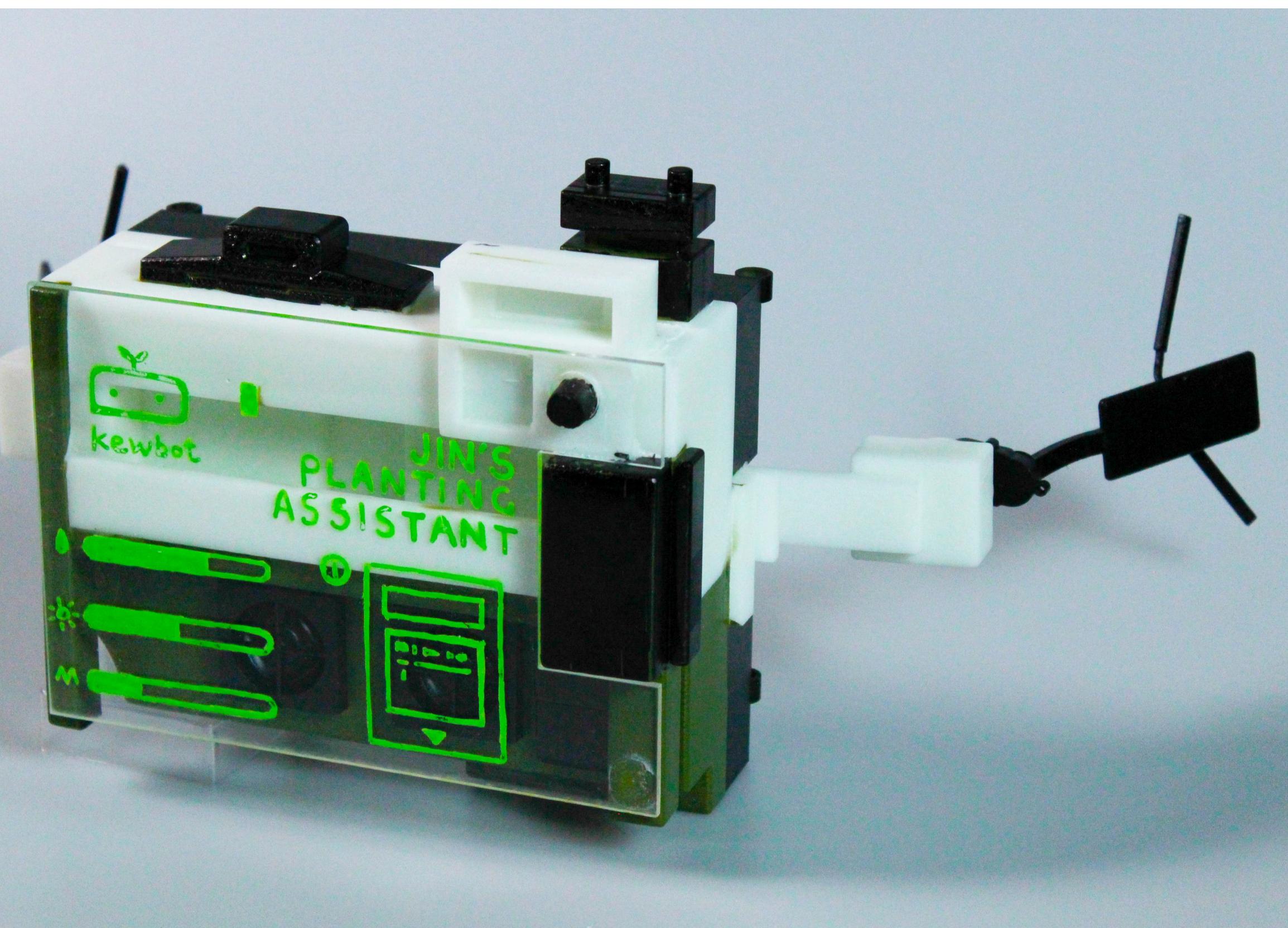
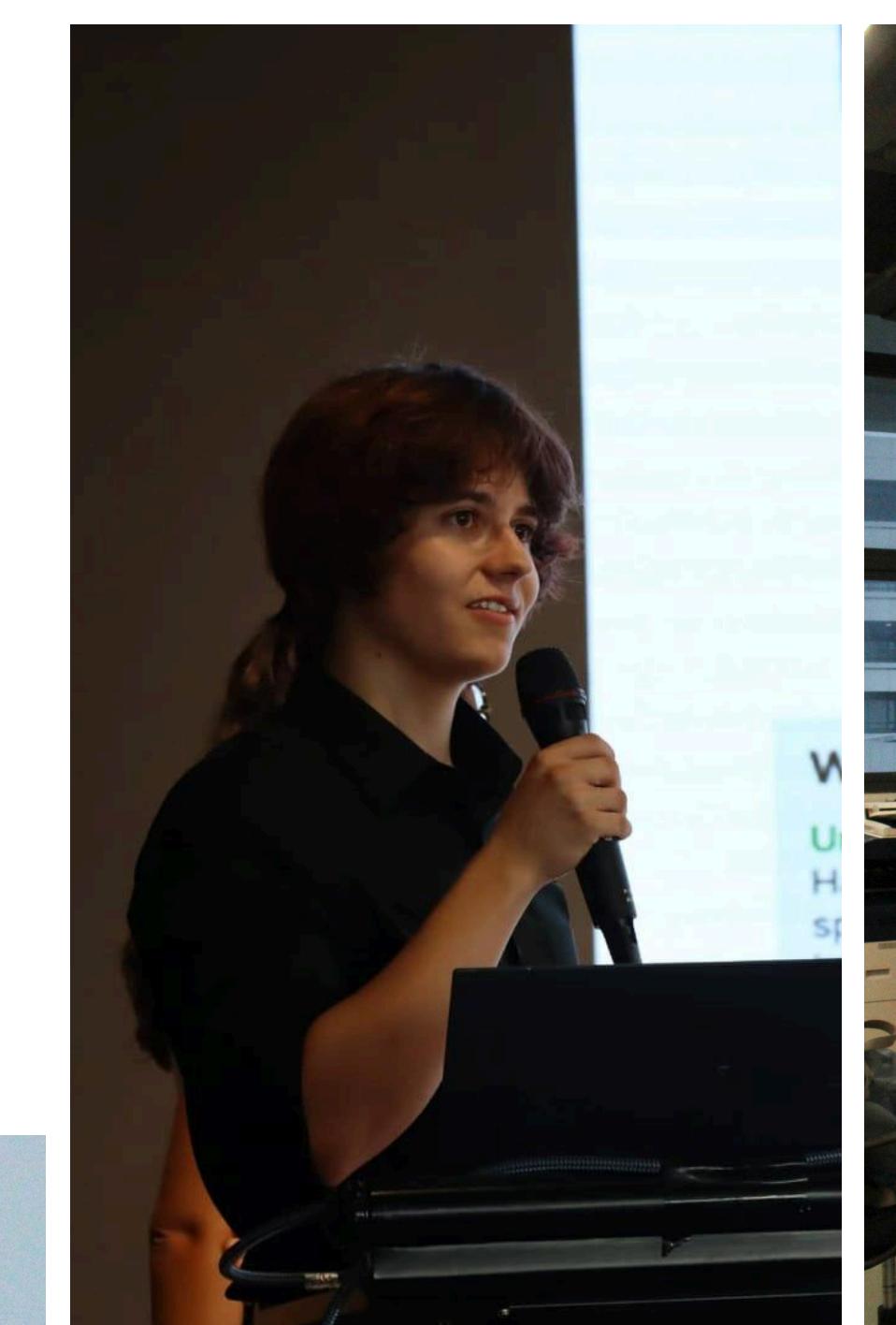
Student Representative

I was selected to represent Imperial at the first international design summer school in Qingdao run by Tsinghua Academy of Science & Art (TASA) and the International Council of Design (ICoD). This brought student together from top design schools around the world, including NID, Kookmin, RCA, Tsinghua, SUSTech, to work together.

The lab split the cohort into two groups. The first looked at a 'good' 2050, the second at a 'bad' 2050. The brief was to design something for this future, that embodies the values it represents.

Our team was a group of five from Imperial and Tsinghua Industrial Design (check out the group picture Huhonghao drew in the bottom right!). We were assigned the good 2050 and worked on an assistive gardening robot for that era. We drew upon trends of aging populations, vertical cities, and local food production, to influence the design and built a model prototype.

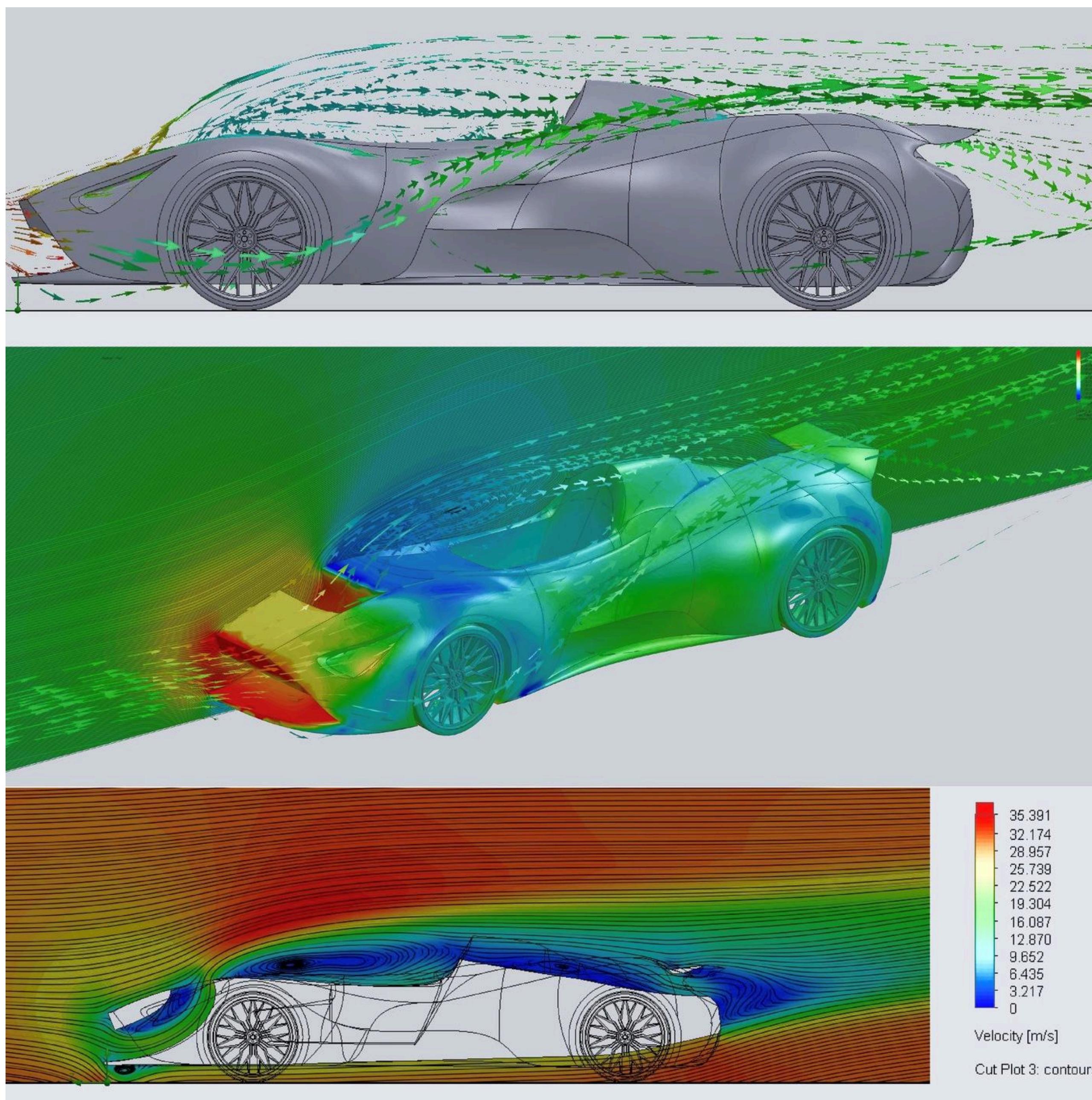
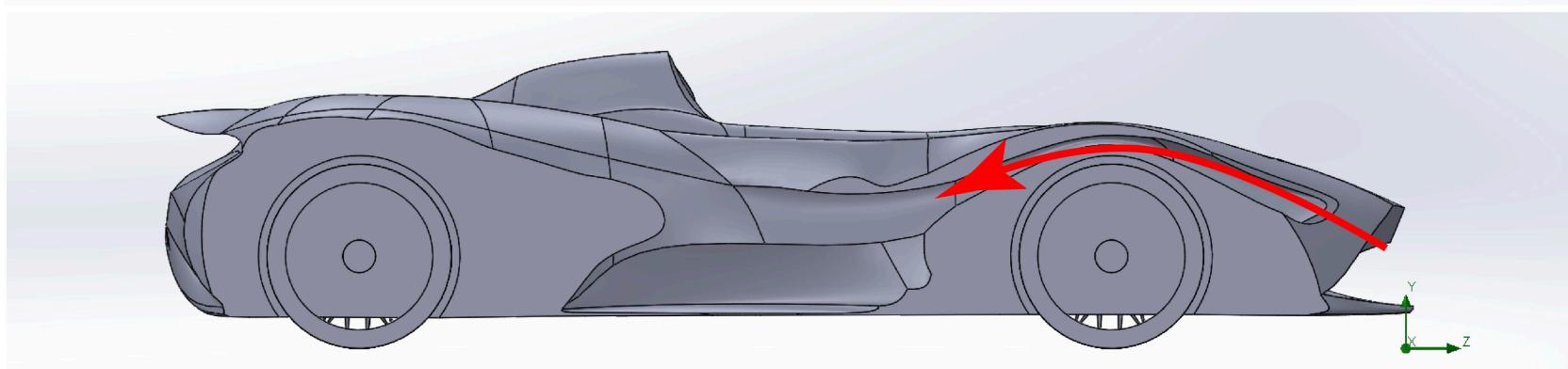
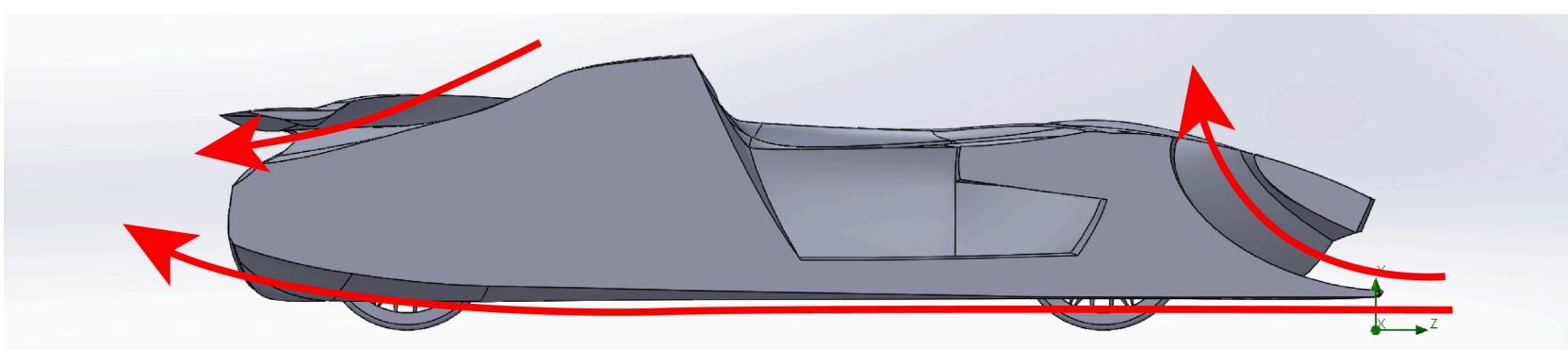
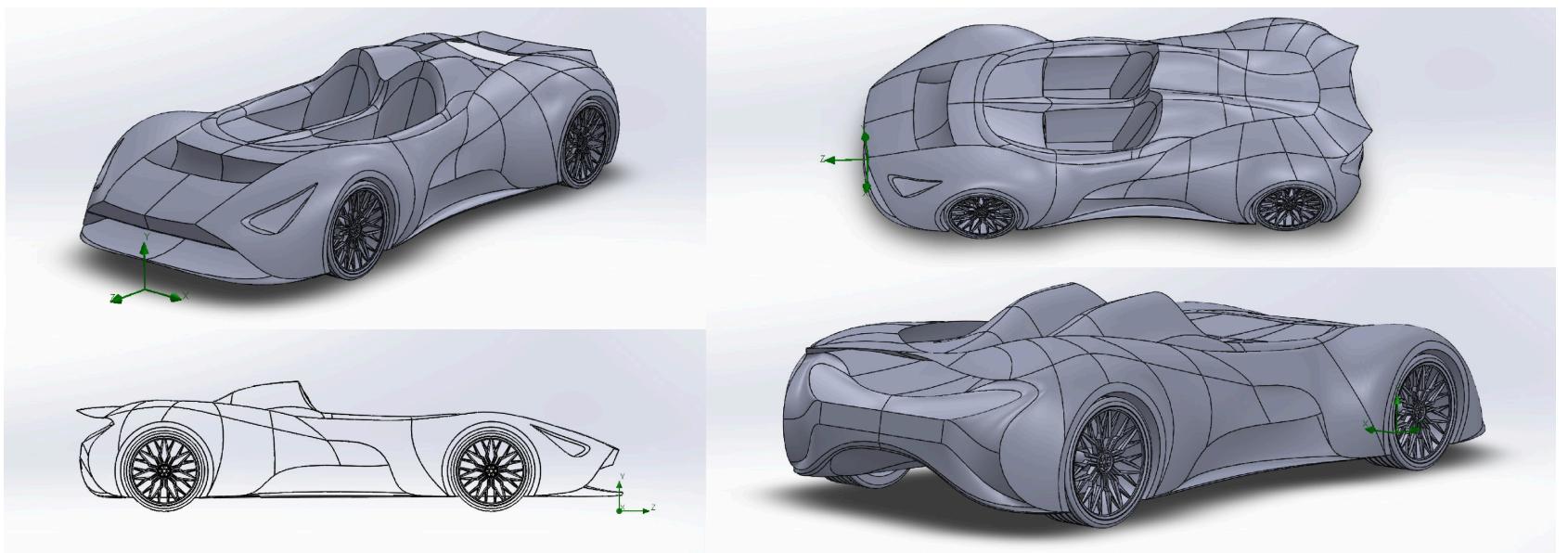
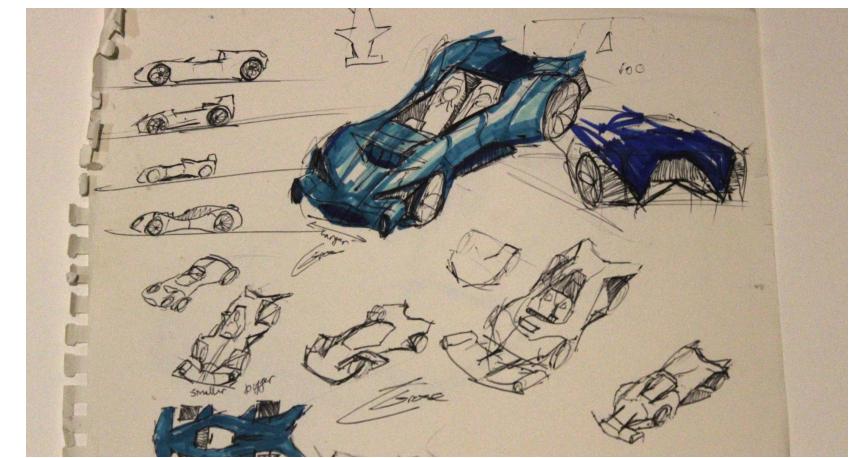
We presented this work to Chinese government officials, along with industry leaders from Hisense, Goertek and CRRC with the other groups. It was great! I really enjoyed the experience of traveling and working in China. Getting to visit factories and labs across Qingdao was eye opening and has greatly influenced my design practise.



Following a sketching workshop led by ex-Ferrari designer Boris Fabris, I developed an automotive concept that balances aesthetic form with aerodynamic function. Visually, the styling draws inspiration from the organic forms of sharks, while the engineering concept references the McLaren Elva's 'active air management' system. The design eliminates the need for a traditional windscreens by channelling air through the bonnet, effectively creating a 'bubble' of low-velocity air to protect the driver.

I began with extensive hand sketching before moving to SOLIDWORKS to build the model from scratch. This process was a deep dive into advanced surface modelling, requiring the creation of complex, curvature-continuous forms to achieve the desired aesthetic.

To validate the engineering feasibility, I utilized SOLIDWORKS Flow Simulation to test the vehicle's aerodynamic performance. Using 2D plots, 3D surface plots, and trajectory analysis, I calculated the coefficient of drag and downforce, successfully verifying that the geometry directs airflow exactly as intended, creating the protective air pocket for the driver.



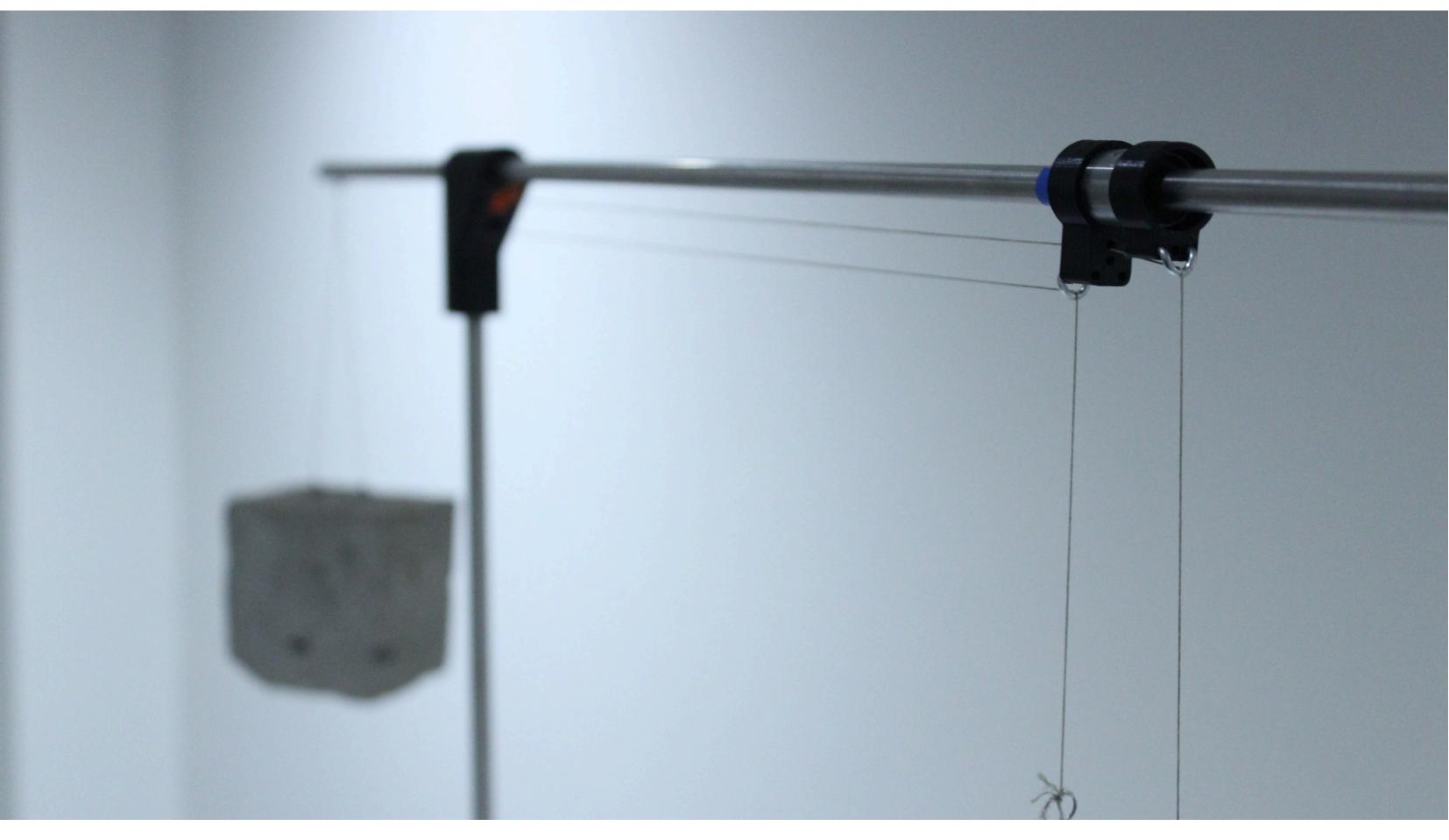
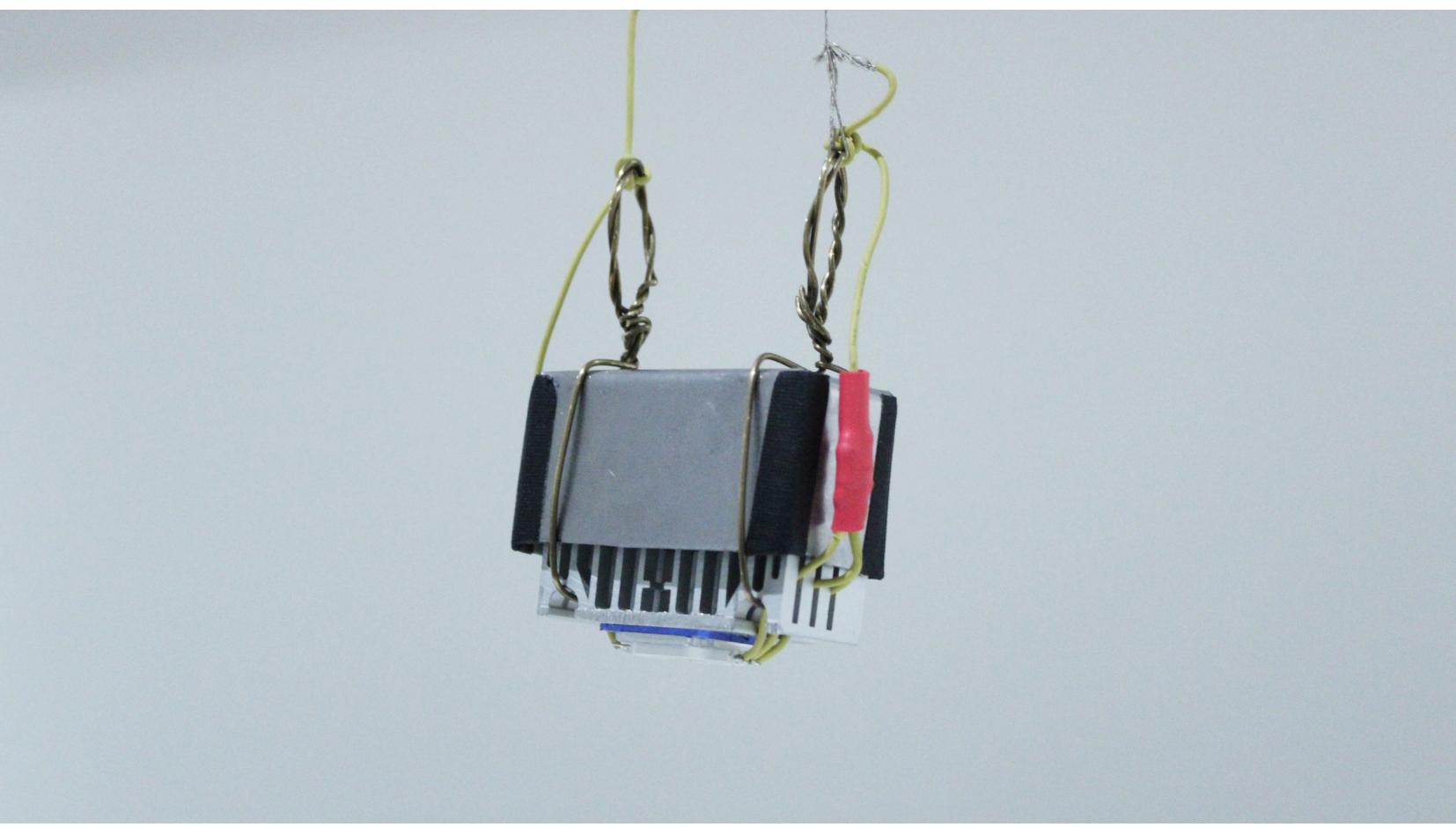
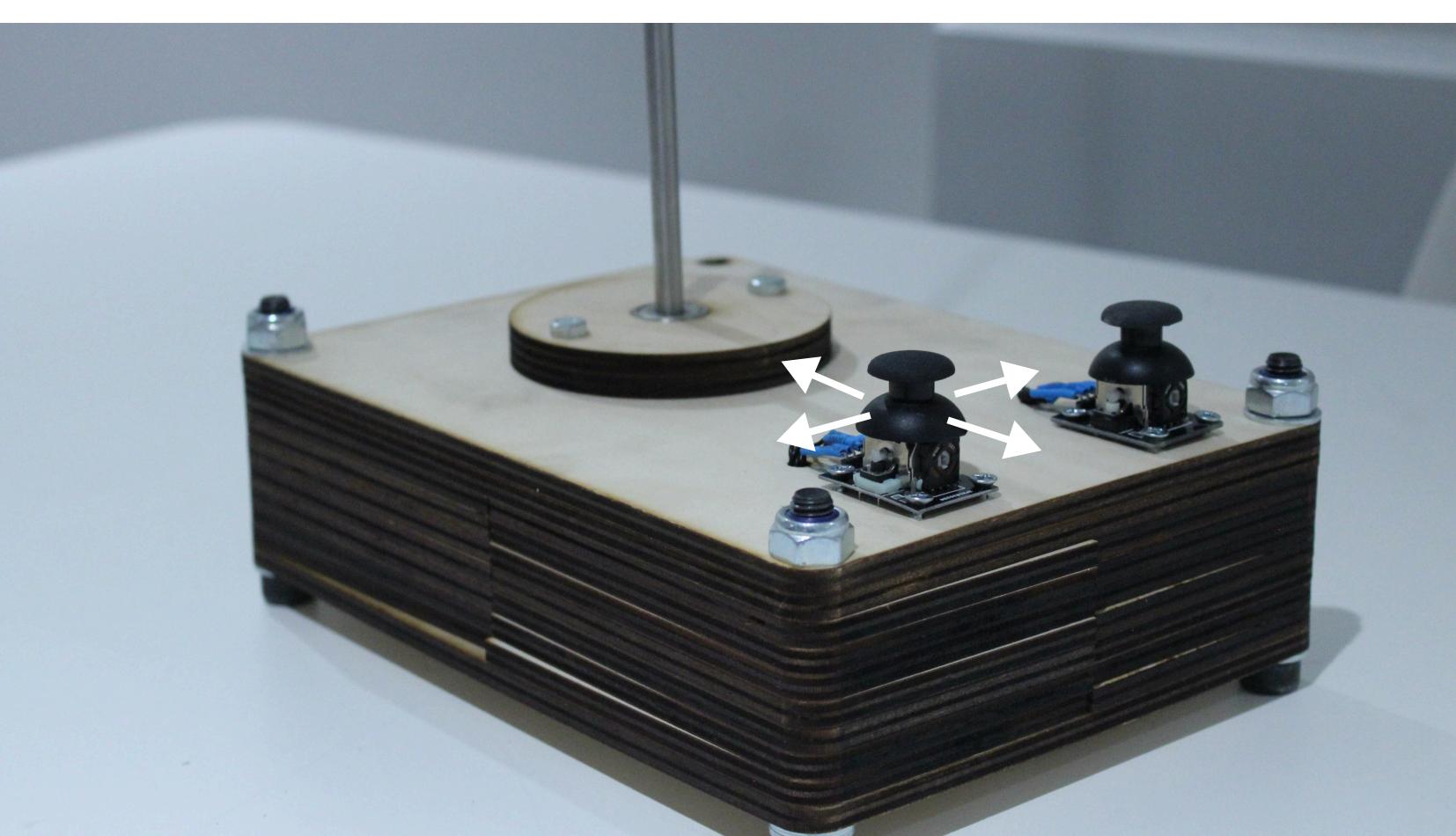
# Monotonic Noise - Mechatronic Crane Lamp

Product Designer

I have always been fascinated by cranes; there is something hypnotic about their steady, purposeful motion. During late-night walks in London, my interest was reignited, inspiring me to capture that feeling in a lamp, a functional piece that serves as a reminder of the power of perseverance and the beauty of progress.

The interface is built around two joysticks, controlling the three degrees of freedom needed to move around the LED container. The whole crane rotates around the base, and two sets of cable mechanisms run through the structure to move the container along the boom and vertically up and down.

Inside the base, I used a ESP32 microcontroller and custom circuitry to map the analog inputs to the lamp's mechanical movement. Aesthetically, the project draws inspiration from Ron Arad's 'Concrete Stereo' at the V&A. I wanted to incorporate a similar use of raw materials to give the object a distinct, constructionist feel. I enjoyed casting the concrete for the counterweight!



# Balance - Sculptural Lamp & Blender Film

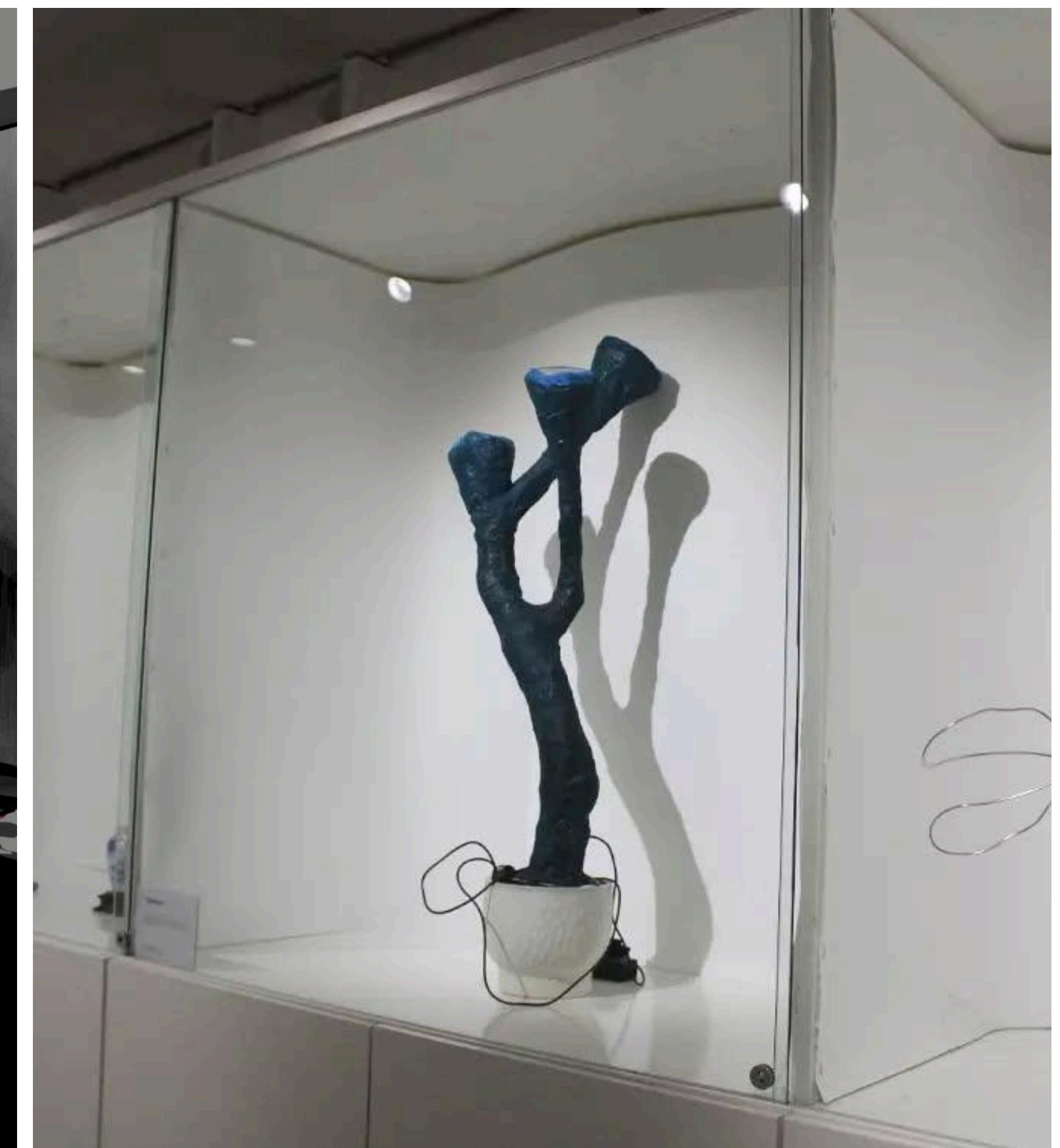
Artist

Created as a personal exploration of the sustainability of work-life balance during my time at Imperial, my animated short film 'Balance' depicts a healthy routine can go wrong, visualised through a shifting colour palette that evolves from vibrant to monochrome. The narrative is anchored in a digital recreation of my university building and the South Kensington tube exit, a specific location chosen to represent the physical boundary between my work and personal life.

In the film, feelings of exhaustion and desperation are conveyed through the character's body language as they cycle past the cranes of Kensington Olympia, where I used Blender's grease pencil tool to overlay wireframe truss structures onto the city streets, illustrating how engineering topics began to visually bleed into my perception of the outside world.

The technical execution involved modelling, rigging, and rendering the entire piece in Blender as a continuous shot. The film was grounded by the ambient sound of rain I recorded on campus at night. At the heart of the narrative is a glowing lamp that represents the power to reshape environment you are in - an object I brought into reality alongside the film.

Inspired by Gary McMillan's painting of the mythical "Limoonal", I physically sculpted this functional lamp from wood and modrock to replicate the specific texture and coloured glow, a piece that was subsequently selected for exhibition in the Blythe Gallery at Imperial as pictured.





Lets work together!

(+44) 07913 632226

christian.grose22@imperial.ac.uk