



Shintaro Fushida-Hardy

Creative and practical problem solver

Portfolio 2025



Can I manufacture seamless chains?

Title project

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Other casting: ceramic

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Can I make a portable space?

Title project

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Other wood

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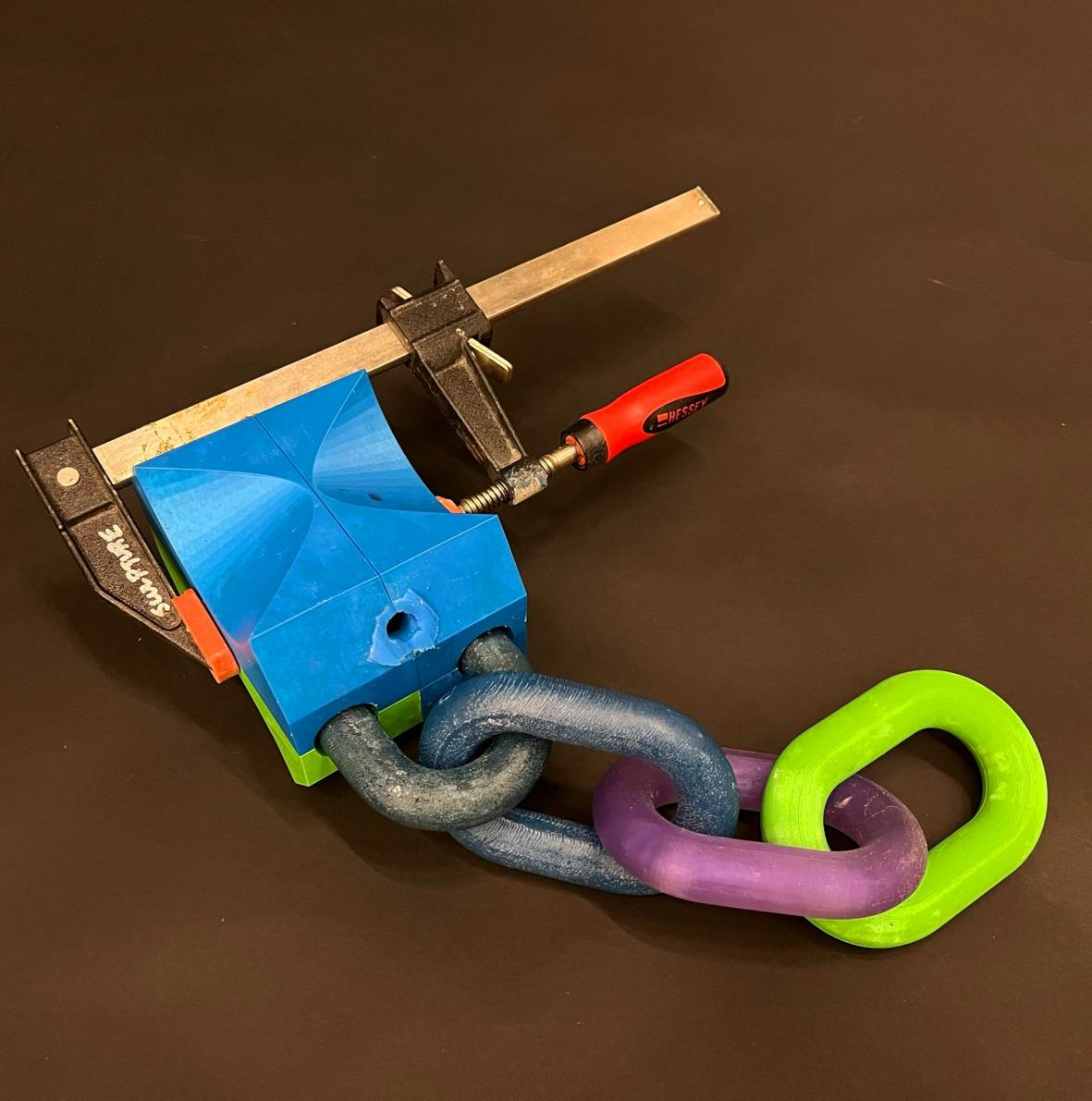
Other projects

Metal

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Textiles

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Can I manufacture seamless chains?

I designed and fabricated a “chain factory” which in turn creates chains without structural defects.

Solo coursework, 2023.

Problem solving. CAD. 3D-printing. Silicone blanket mold.

Problem

Chains are conventionally made by bending (and optionally welding) cylindrical rods, resulting in structural and aesthetic imperfections. This made me question whether or not I can design a manufacturing process to create chains without systemic defects.



Solution idea

I explored casting as a possible alternative manufacturing process. This is because casts are structurally uniform with minimal visual defects, and molds are reusable. The goal is to design a mold that can iteratively output arbitrarily long chains.



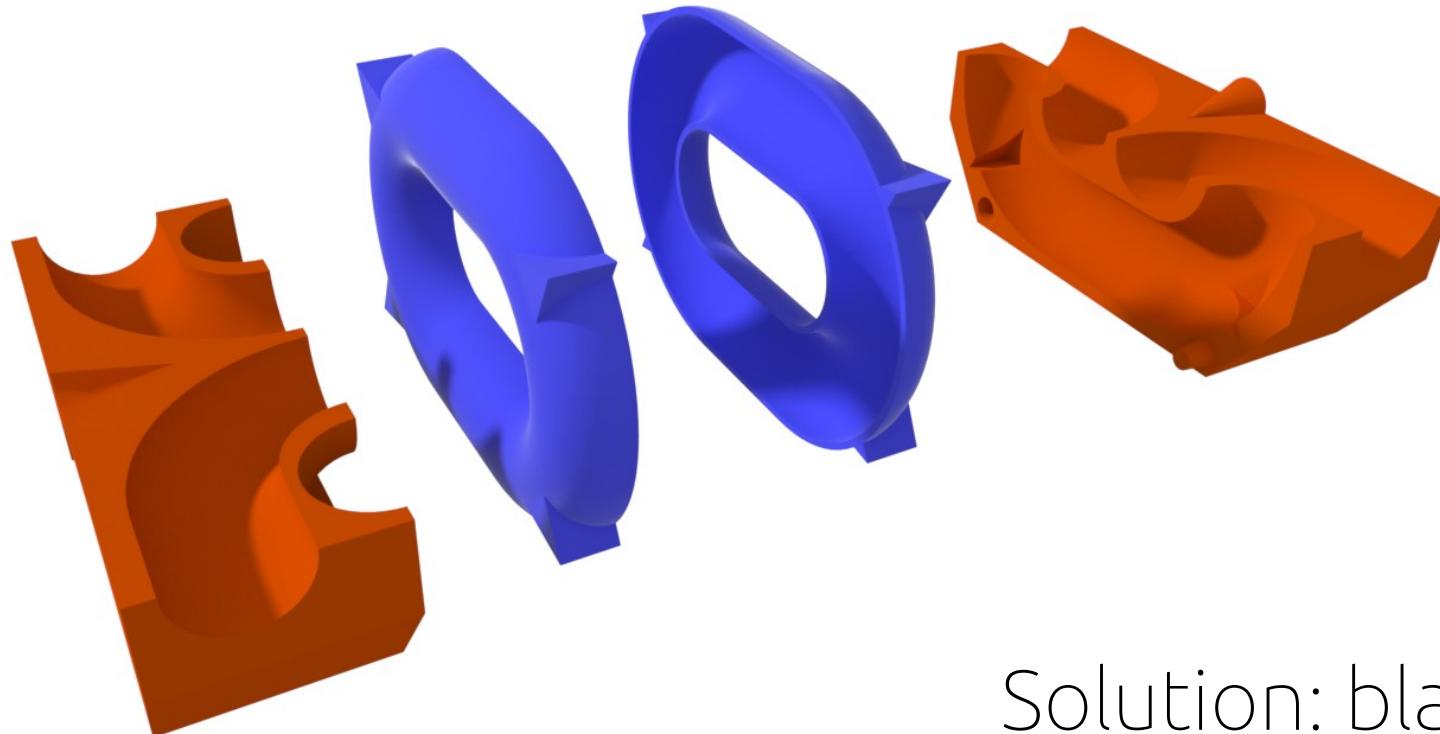
Proof of concept

As a first step I 3d-printed a four-part mold to cast loops (without chaining them together). This proof of concept can be used to experiment directly with both *form* and *material*.

Material experimentation

Various casting materials and mold-releases were tested against 3d-printed PLA molds (cups). 3d-printed PLA was found to be too porous; most casting materials fused with the molds. This prompted further problem solving in the *material* realm.





Solution: blanket mold

The final “chain factory” consisted of a multi-piece poured blanket mold:

- A two-piece silicone blanket which ensures a smooth and non-adhesive casting interface.
- A four-piece mother mold (3d-printed in PLA) which provides structural support, ensuring a uniform cast.

Other casting: ceramic

Below: five-part (reusable) plaster mold and one ceramic cast.

Right: three ceramic casts produced from the mold, glazed and fired.

Solo extracurricular work, 2023.



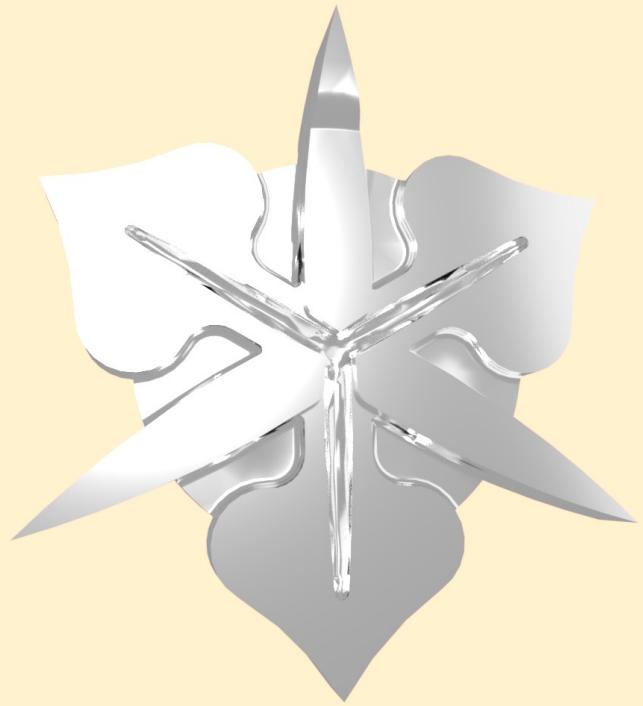
The mold was used to *slip cast*, which allows the mass production of identical ceramics. The desired form of the cast necessitated a complex mold.

Other casting: metal

Below: render of a CAD model which I then 3d-printed in a wax-like resin.

Right: silver pendant in the shape of an iris made by *lost wax casting*.

Solo coursework, 2024.





Can I make a portable space?

I was commissioned to design and build an installation for the Frost music and arts festival.

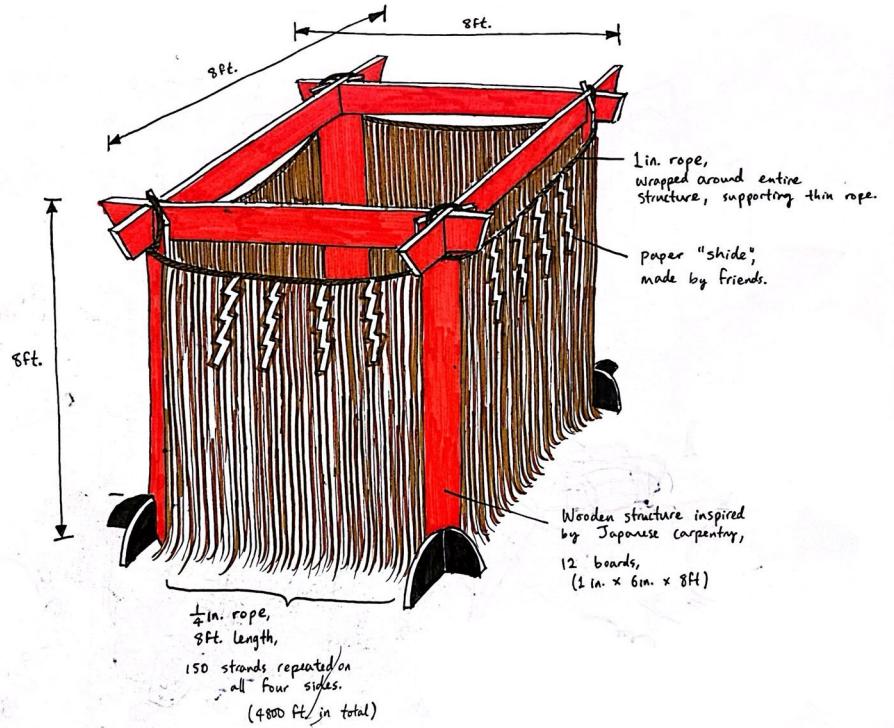
Solo extracurricular work, 2023.

Human-focused design. Wood shop. Commercial constraints.

Prompt

"Sacred Spaces" - I was commissioned to design and build a sacred space, where sacred was up to my own interpretation. Additionally:

- Expenses (such as materials) were covered, but only up to \$800.
- The piece was to be installed in half a day before the exhibition, and dismantled in half a day after the exhibition.





Solution: Japanese joinery

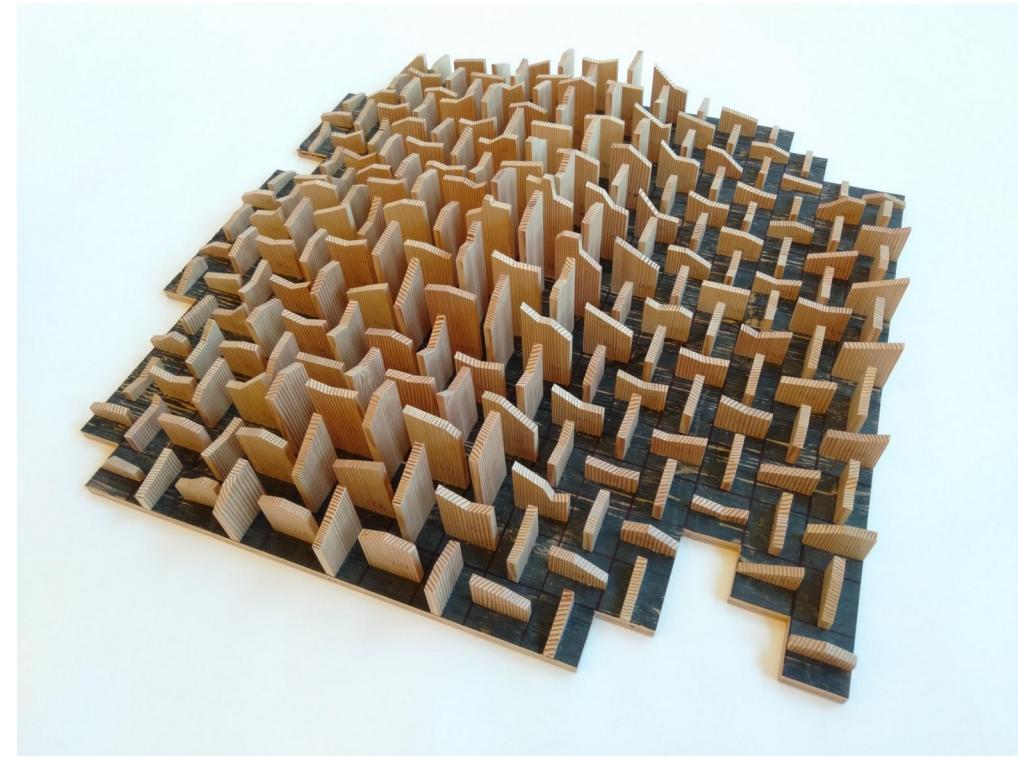
Japanese traditional joinery uses interlocking slits, tension, and gravity to hold complex forms together. Only a mallet is needed to assemble and disassemble structures, so it was the perfect solution for a rapidly transportable installation.

Other woodworking

Below: *Flowermountain*. Interactive/social artwork inspired by my love of 3d metal puzzles.

Right: *Entwined Experience*. The frontal perspective reveals a contour of Mt Manaia, while the side perspective shows Mt Kuju.

Solo coursework, 2022.



Flowermountain prompted collaborative research into large-scale asymmetry arising from highly symmetric units.

Shintaro Fushida-Hardy and Peter Huxford. "A Modular Sculpture Corresponding to Three Rotations" *Bridges Conference Proceedings*, Aug. 2024, pp. 511-514.

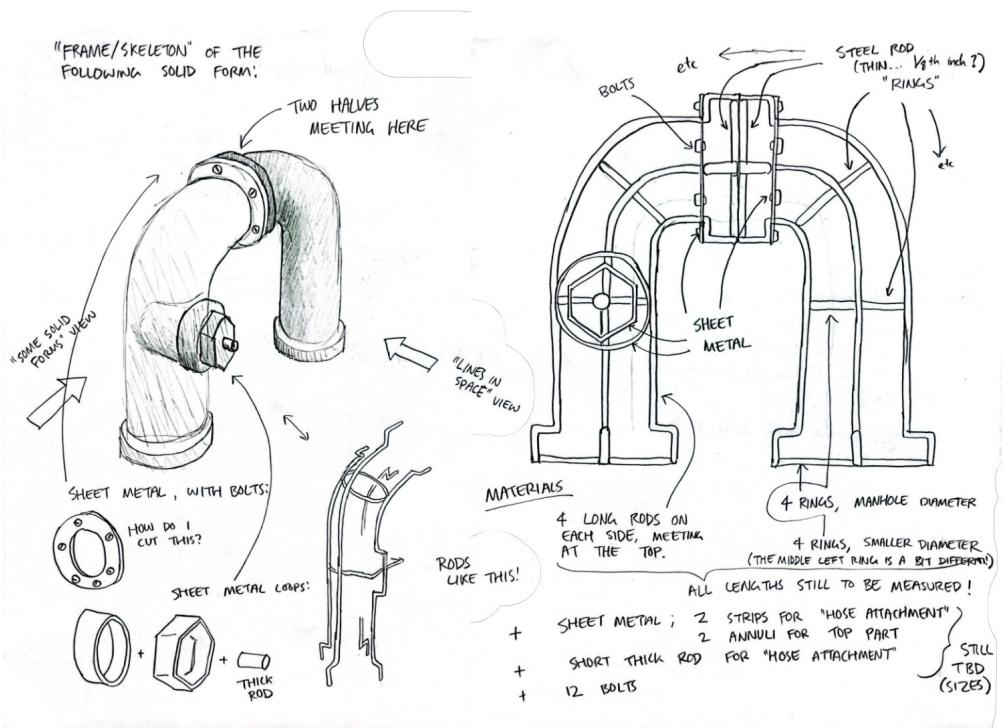
These projects incorporated several manufacturing methods:

- CAD and CNC routing.
- Manual precise shop tools (planer, jointer, table saw etc.)

Other projects: metal

Union. Early planning below, and final sculpture to the right. The steel sculpture involved cold metal working, welding, and plasma cutting. Additionally, CAD facilitated efficient calculations and modeling.

Solo coursework, 2022.

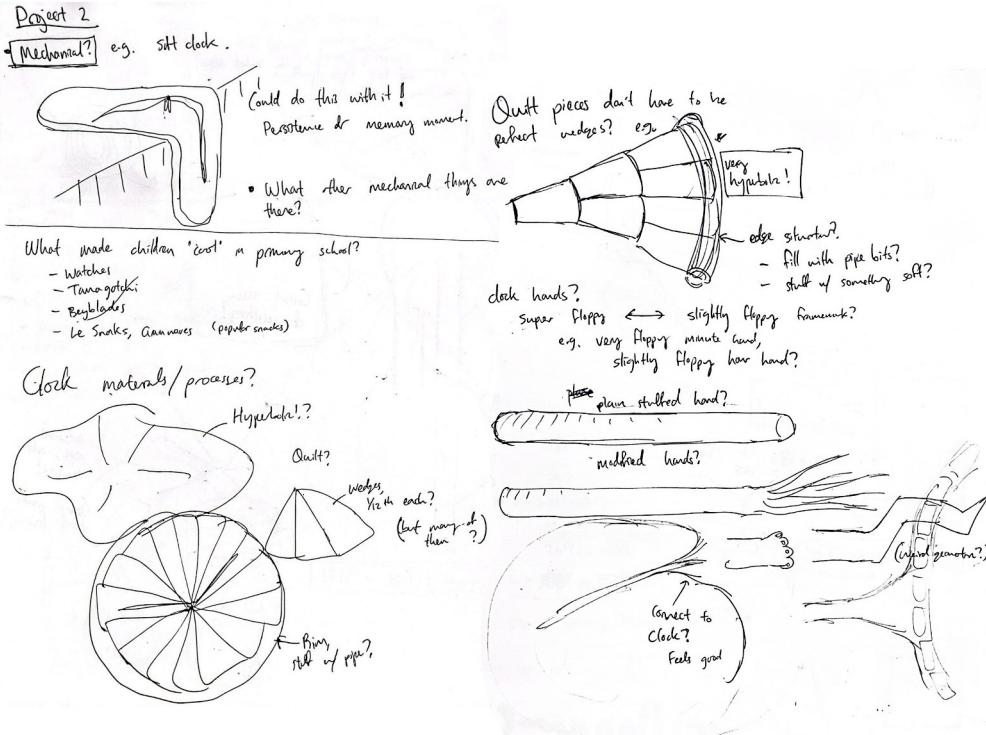


Other projects: textiles

Below: early ideation.

Right: the front and back views of a quilted clock inspired by Dali's *The Persistence of Memory*.

Solo coursework, 2023.



The wobbly effect was achieved by using *hyperbolic geometry*. The sum of the angles around each vertex of the quilt exceed 360 degrees.

The clock-hands, although intentionally floppy, technically functioned.