Physical form. Purposeful interaction.

Samuel Frausto

I design experiences people can learn by doing, from tactile puzzles to spatial environments and interactive tools.

USC Iovine and Young Academy
B.S. Human Technology Interaction · May 2028
In partnership with the Viterbi School of Engineering



Duo puzzle box

Current digital prototype. Printing in progress.
Adapted character model; student concept.

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USC class project · October 2026

Turn a meal into a tactile language lesson.

Three physical activities teach Korean numbers, food words and polite phrases. Each unlocks a piece; completing Duo earns a photo for the restaurant wall.

1 Count & turn

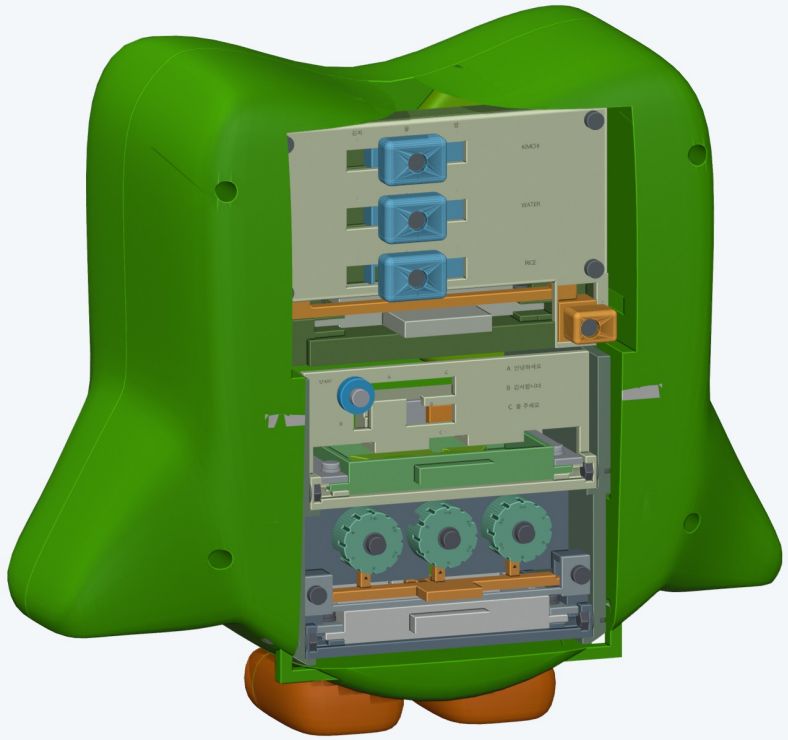
Use the menu as a number reference, then align the wheels.

2 Match & slide

Match kimchi, water and rice to their Korean names.

3 Follow & retrieve

Move through the greeting maze and collect the final piece.



Current model: food selectors, maze and wheels.
The menu teaches the words; the mechanism does not verify pronunciation.

My role

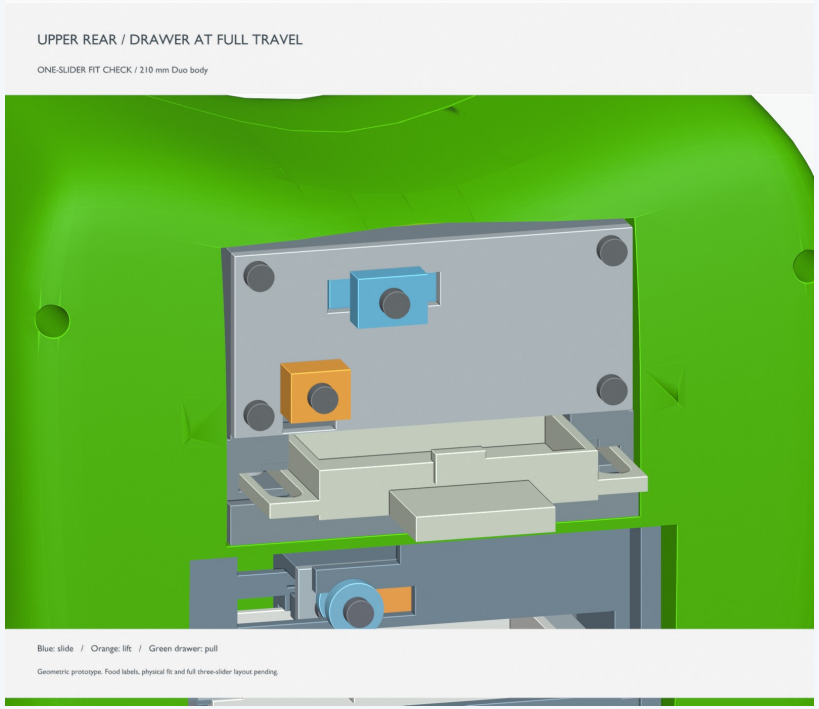
Experience concept, learning sequence, usability critique and direction of AI-assisted Blender development.

Duo base: Wiertarka, CC BY 4.0. Adapted shell/mechanisms; AI-generated geometry under my direction. No Duolingo affiliation.

Control travel & grip

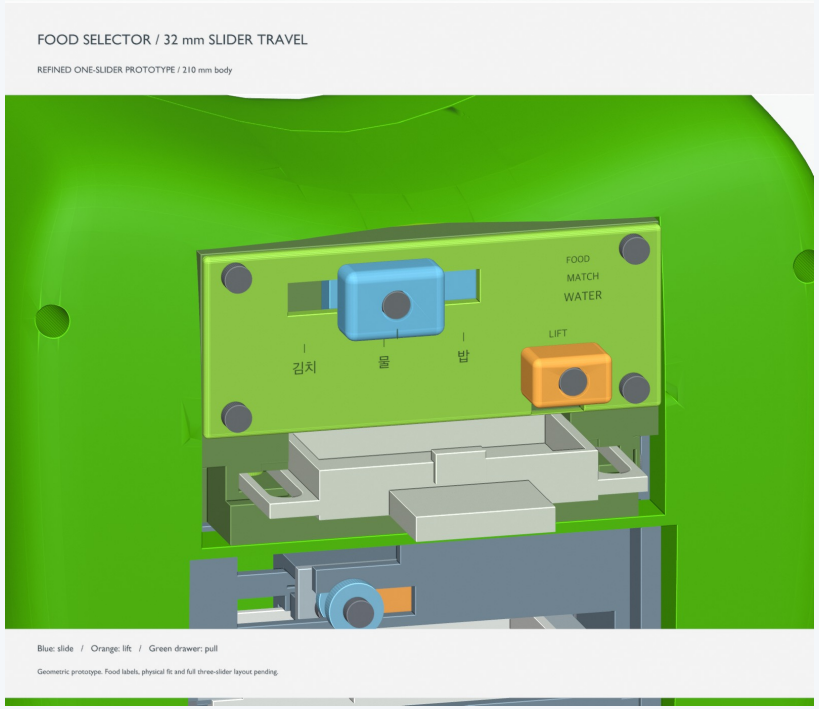
Make the selection action more deliberate.

I flagged that the first selector had too little travel and needed a better physical control.



Earlier selector

16 mm designed travel and a compact knob.



Revised selector

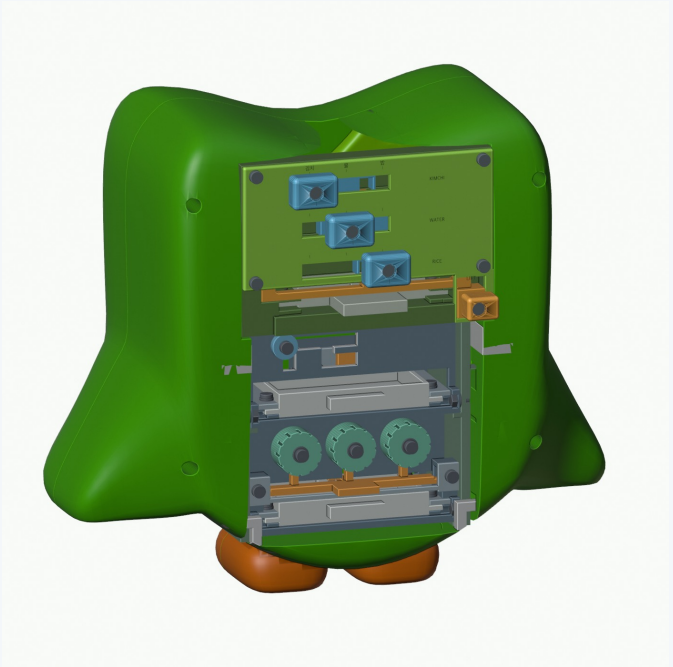
32 mm travel, a larger rounded grip and marked positions.

Intent: make choices more distinct and the grip easier to use. Physical comfort and operating force remain to be tested.

Reach & packaging

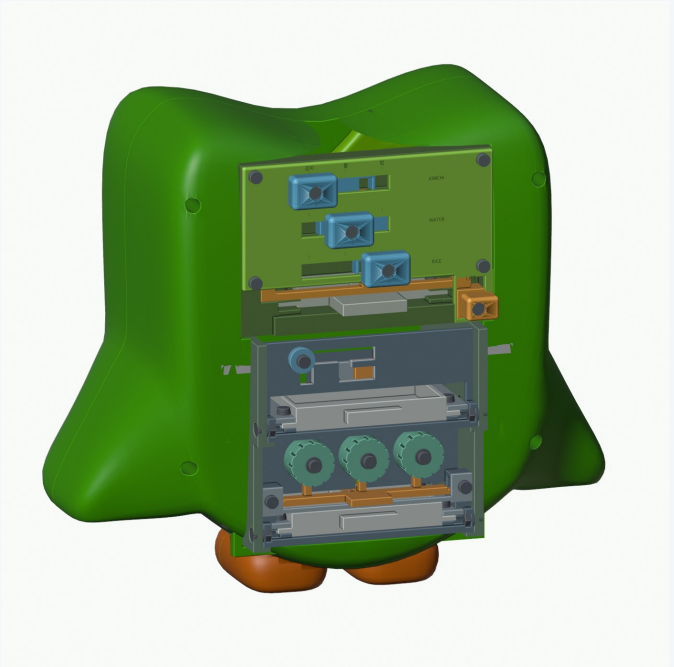
A mechanism can fit and still be hard to reach.

I noticed the controls were too deep inside Duo. Moving them outward improved access in the model, but created a new constraint: preserve the closed character silhouette.



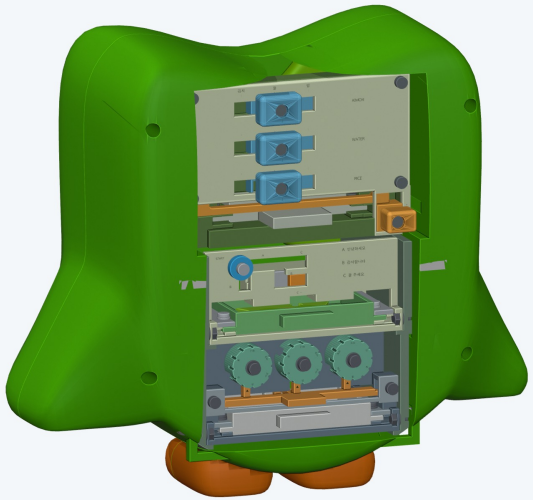
Recessed controls

The maze and wheels sit deeper than the food controls.



Reach study

Wheels moved out 19 mm; maze 25 mm in this intermediate model.



Current arrangement

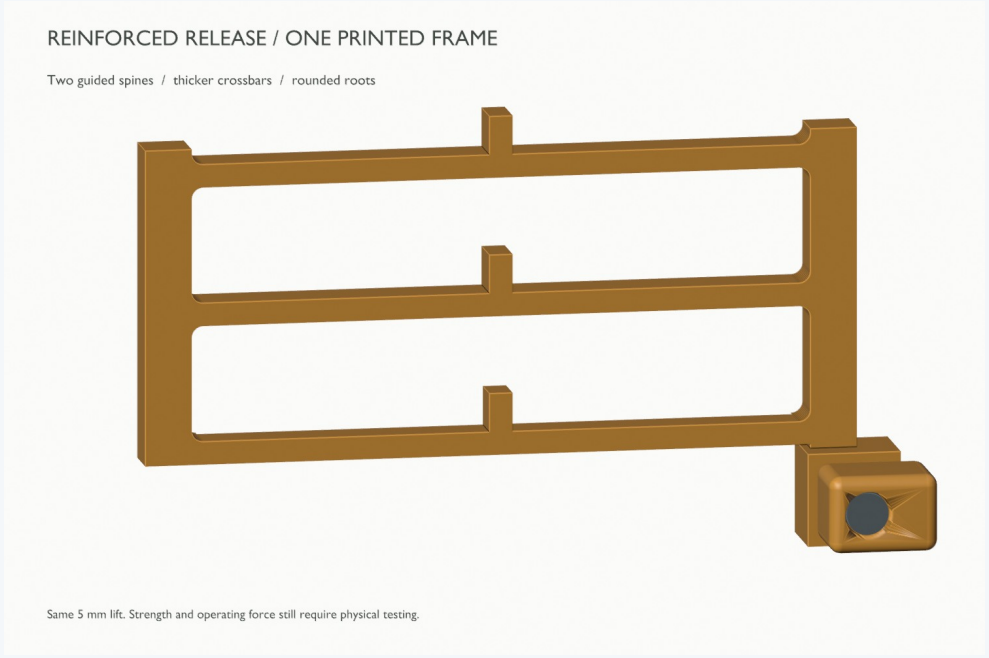
Mechanisms contained when closed; drawers may extend for retrieval.

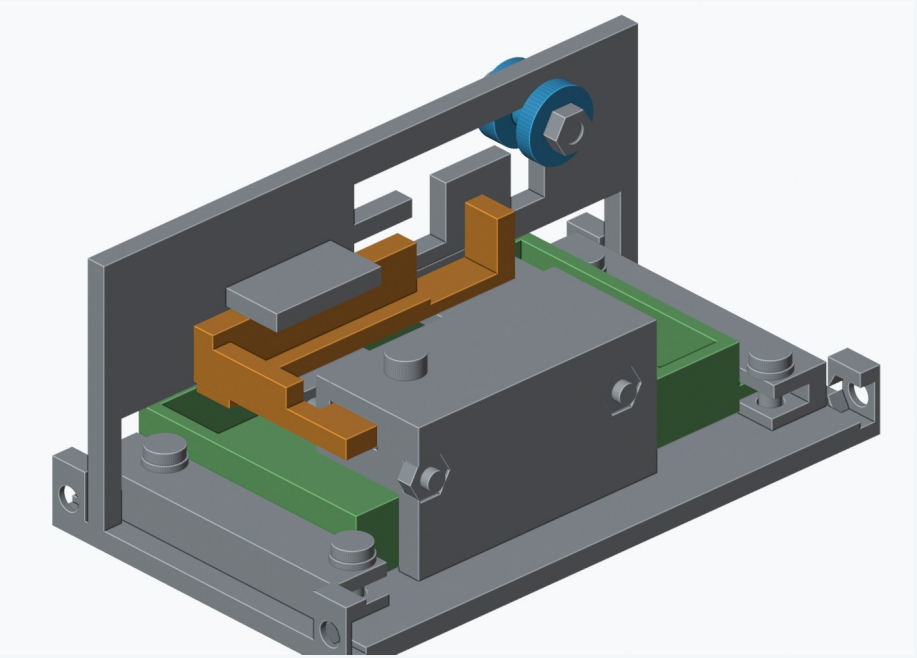
Design decision: balance hand access with a recognizable outer form. Intermediate movement distances are not final dimensions.

Support, reset & physical review

Question what happens behind the control.

I challenged the food release strength and the apparently unsupported maze latch. The next revisions added a connected release frame and support near the maze fork.





A more connected food release

Guided side supports and crossbars address the exposed comb-like arrangement.

Support closer to the maze latch

The revised guide limits tipping geometrically. Printed strength and friction are still unverified.

Printing began October 16. Next: assembly, control feel, piece retrieval, reset and repeated use.

Watch the model

Blender · NVIDIA Omniverse · USC ACAD 288

Build the atmosphere around the interaction.





Cyberpunk 2077 Room Digital Twin

Co-led modeling, animation and skybox production for a room reconstruction.

My contribution

Modeled room elements and helped bring screens, signage and ambient details into motion.

View the project and animation

samfrausto.com

Spatial intent

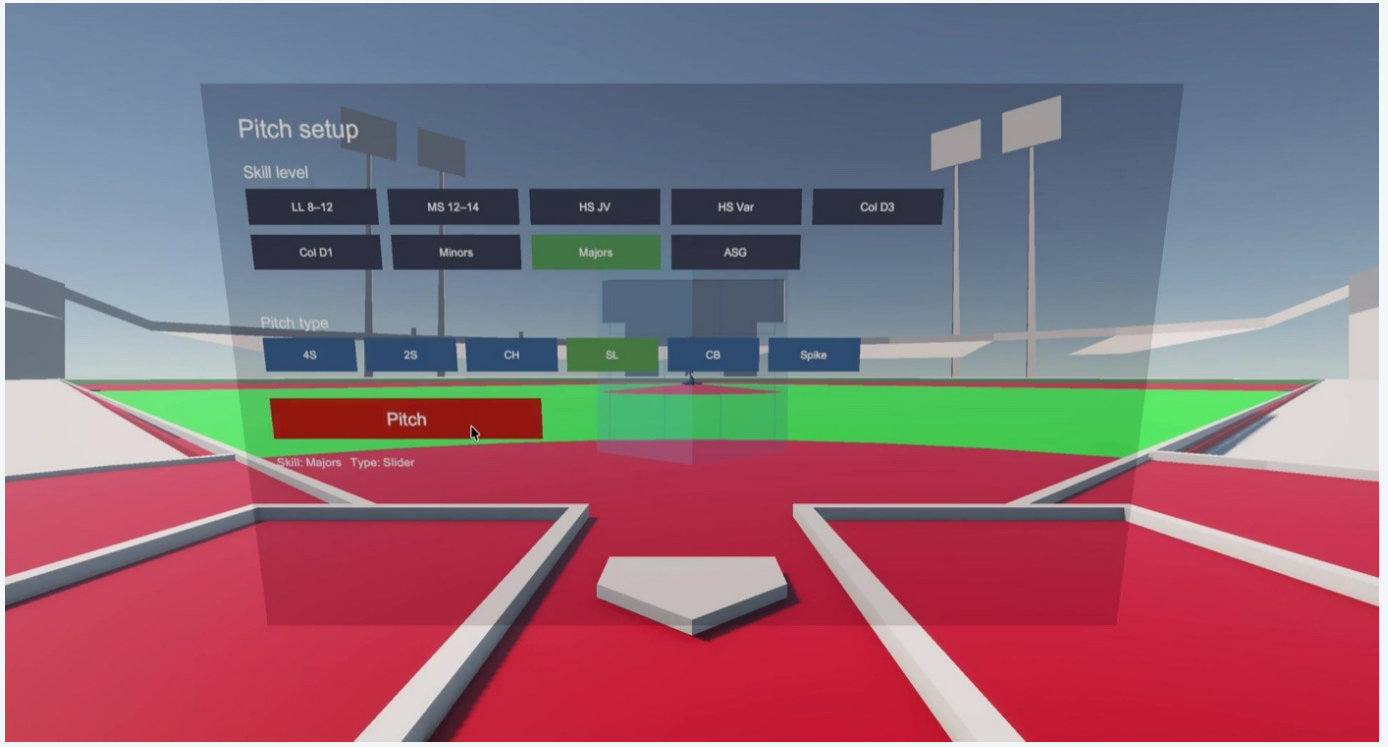
Furniture, props and the view beyond the window work together as one environment.

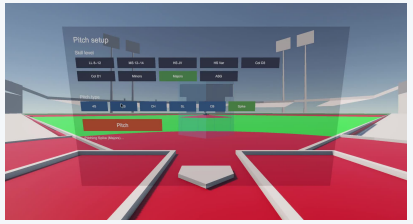
Tools & scope

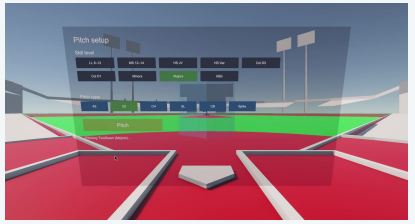
Blender and Omniverse. A small Cursor-made material helper supported the workflow.

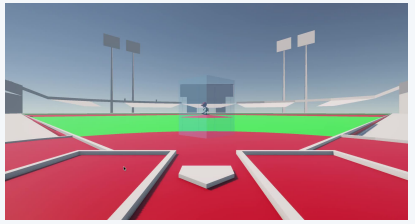
Unity · Blender · Independent project

Make a moving system understandable.









VR Baseball

An ongoing pitch simulator exploring repeatable practice from the catcher's position.

My work

Blender field and equipment; Unity pitch selection, visible trajectories and strike-zone detection.

Animation

A Unity skeletal pitcher rig links delivery and release to ball movement. The project is in development.

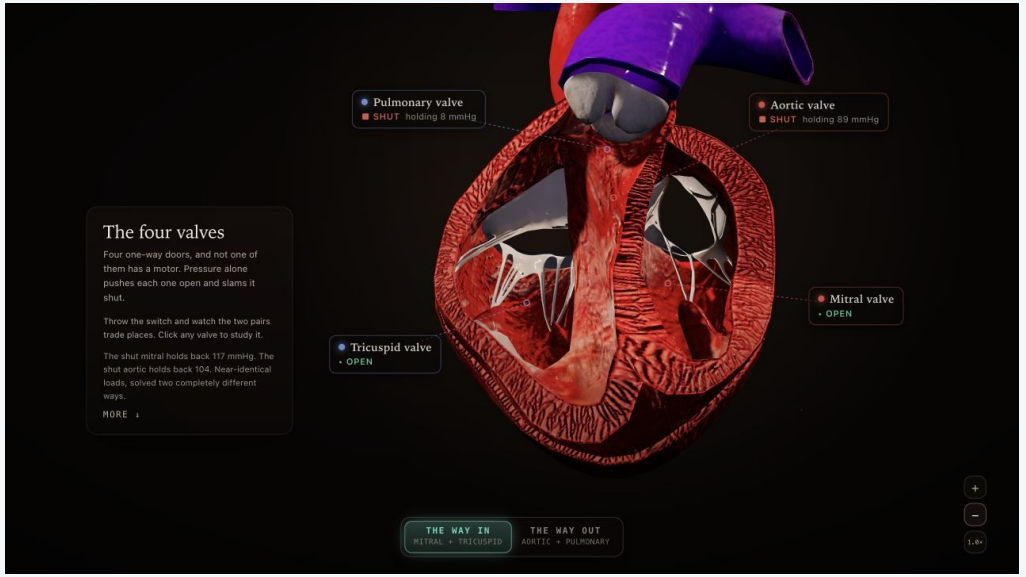
Frames from the working desktop prototype recording.

Watch the pitch demo

Edwards Lifesciences · June-August 2026

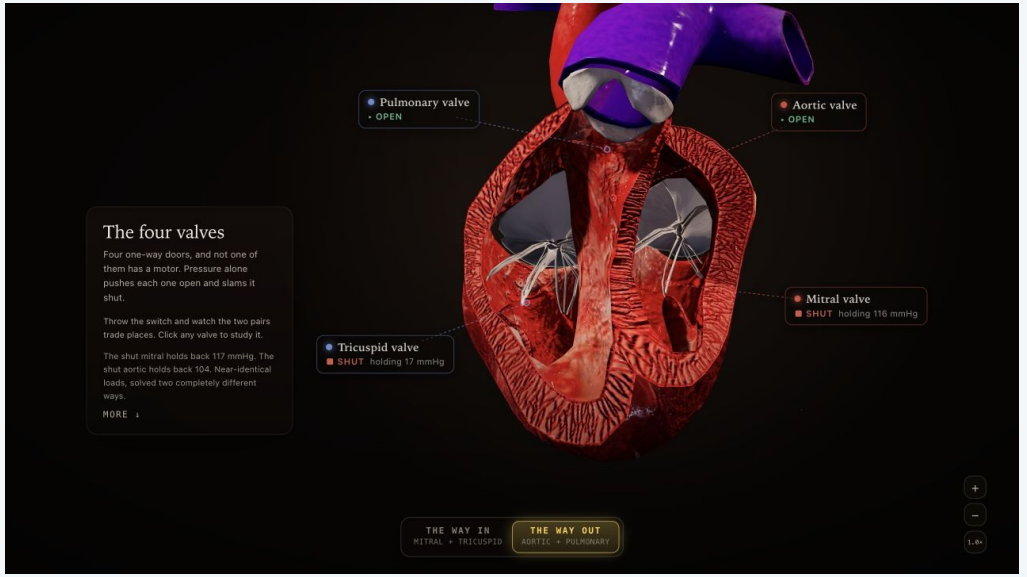
Let the interaction carry the lesson.

I reduced text density and focused each section on its core idea. An informal observation of one person reinforced that direction: their attention gravitated toward the controls.



The way in

Mitral and tricuspid valves open.



The way out

Aortic and pulmonary valves open.

Two current states, not a before-and-after study. I directed the learning sequence, interactions and phased Claude Code implementation. Anatomy assets: 3D4SCI. Formal learning outcomes have not been measured.

Explore Alma

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