Zoë Ingram
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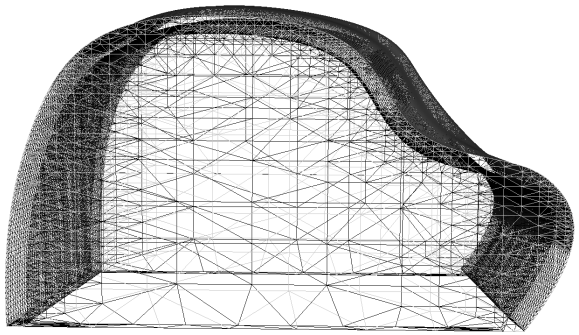
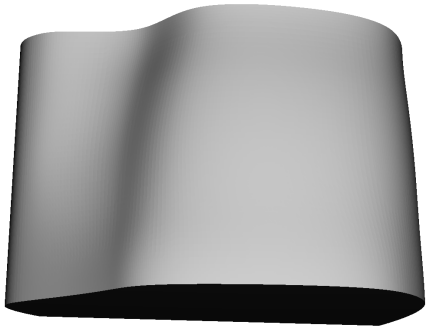
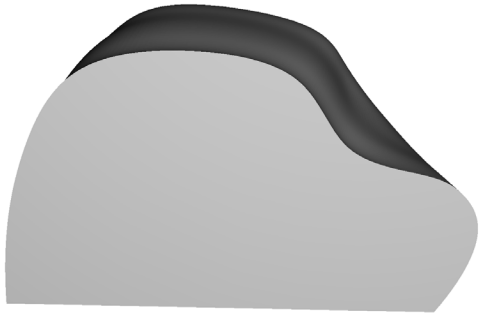
CumulusFM







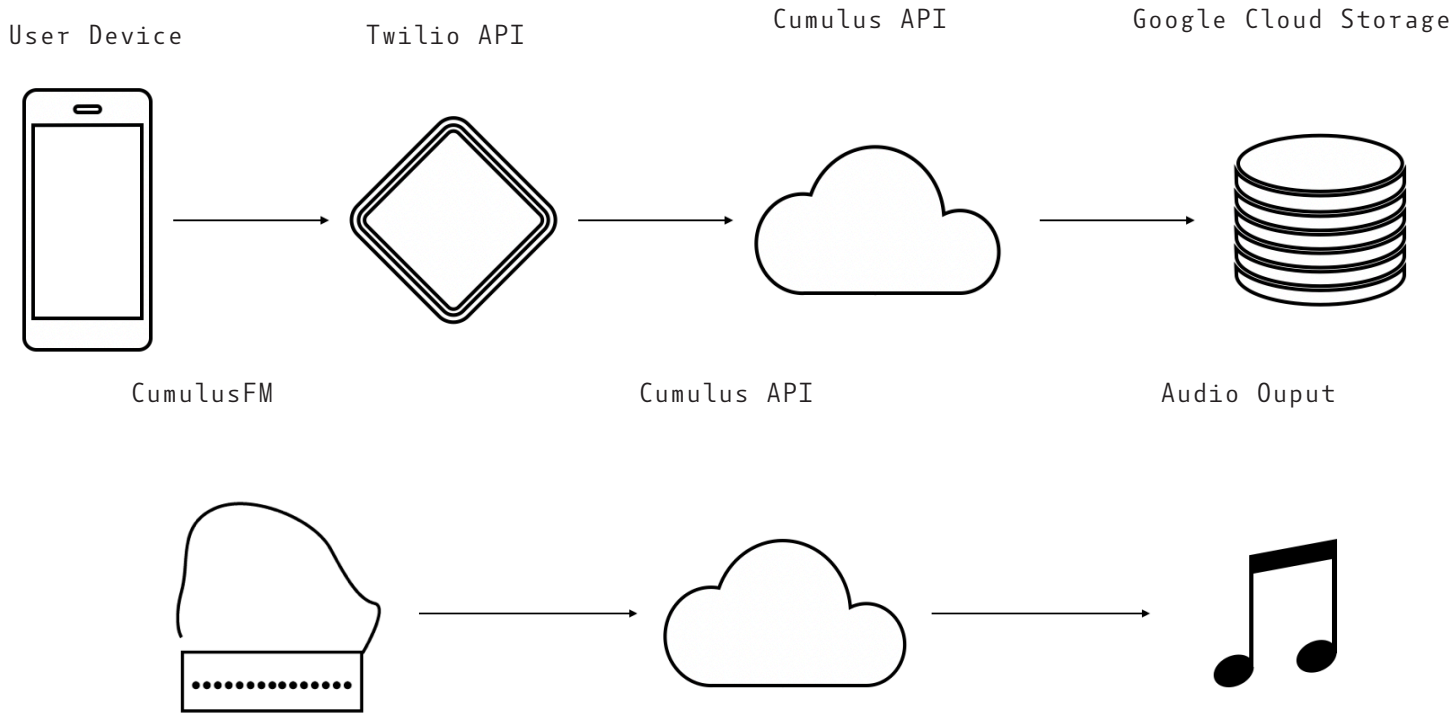
CONCEPT

This piece looks at access to people, especially loved ones. The pandemic has separated couples across the world, making and instant messaging platforms such as iMessage, Whatsapp, Instagram, and Snapchat to be used in excess. I wanted to create a piece for people who do not have access to their person - whether that's due to pandemic, immigration, work, money, or other circumstances.

A user can text Youtube links of songs to a designated phone number (this won't go to the receiver), and these songs will be queued throughout the day for the receiver on their "cloud" device. In the evening, at a designated time, the receiver can speak to their device and trigger a "daily mix" of songs, curated by their person, and listen to their queue while they fall asleep. The next day, the process starts again.

PROCESS

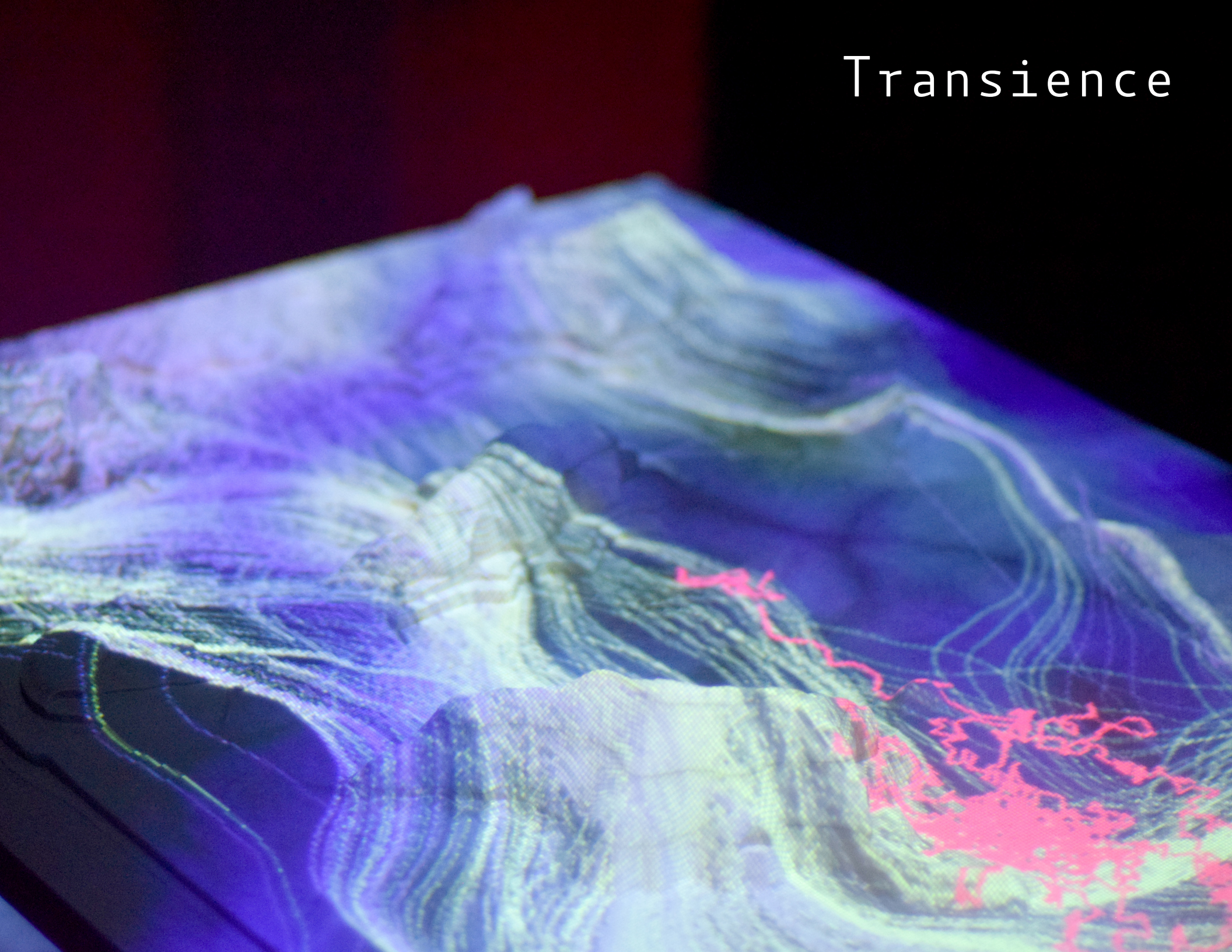
The physical design consists of two pieces - the upper "cloud"was modeled in Fusion360 and printed on a Form3 printer in a single piece. The bottom is a simple box made from wood, and houses a Raspberry Pi, speaker, LED ring light and a microphone to capture user input.

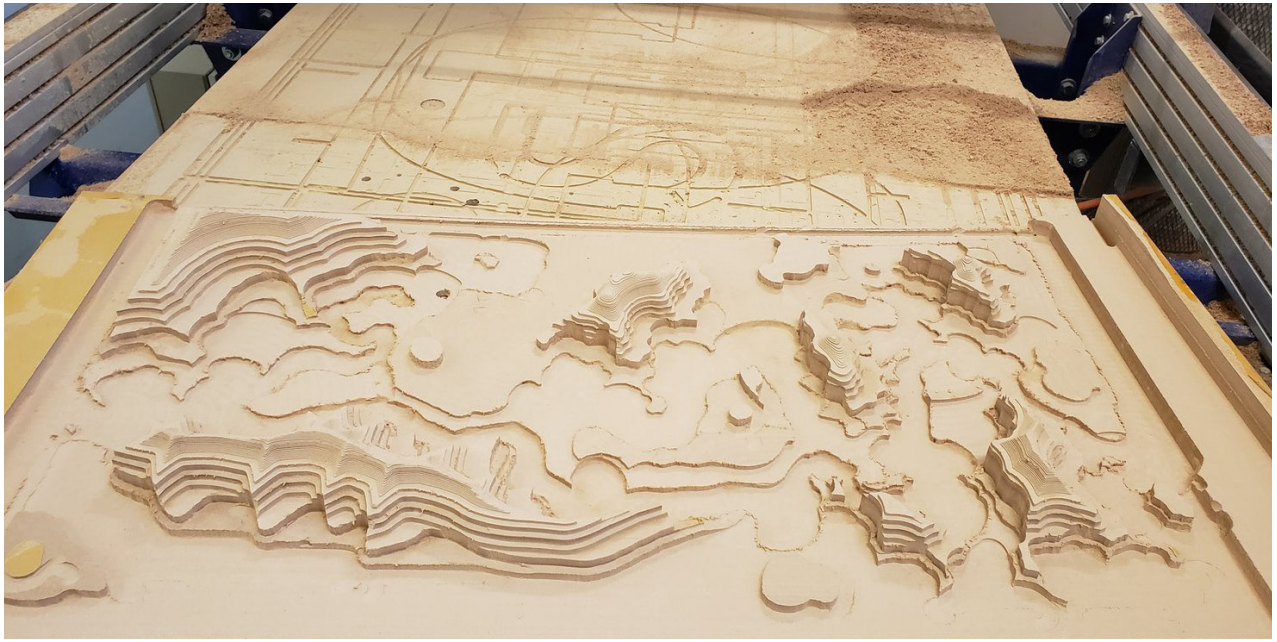


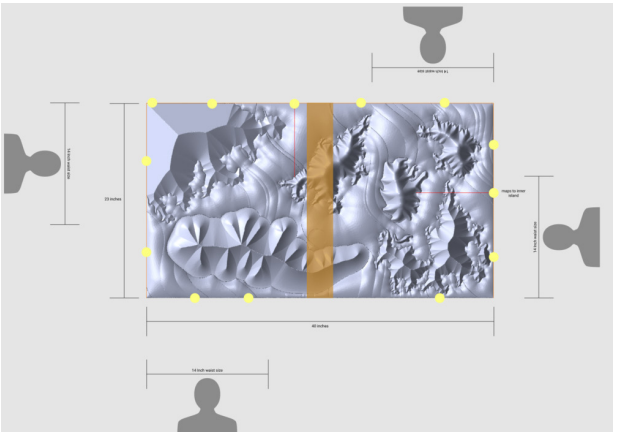
TECH

The software spans multiple devices. When a user texts a song, I employed the Twilio API to hit my own API: two endpoints I deployed via Google Cloud. The text hits a POST endpoint, which stores the song link in a new file in Google storage. On the Raspberry Pi, when a user says “Start”, a Nodejs program is run to hit a GET endpoint on my API, which fetches all the links. From there, I begin downloading/converting the Youtube links to mp3 files.

When a user says “Play”, my Python program runs a subprocess to run a shell script, which uses omxplayer to play the queue of songs converted to mp3s, and turns on the lights. When a user says “stop”, the songs stop playing and the lights turn off.


Transience





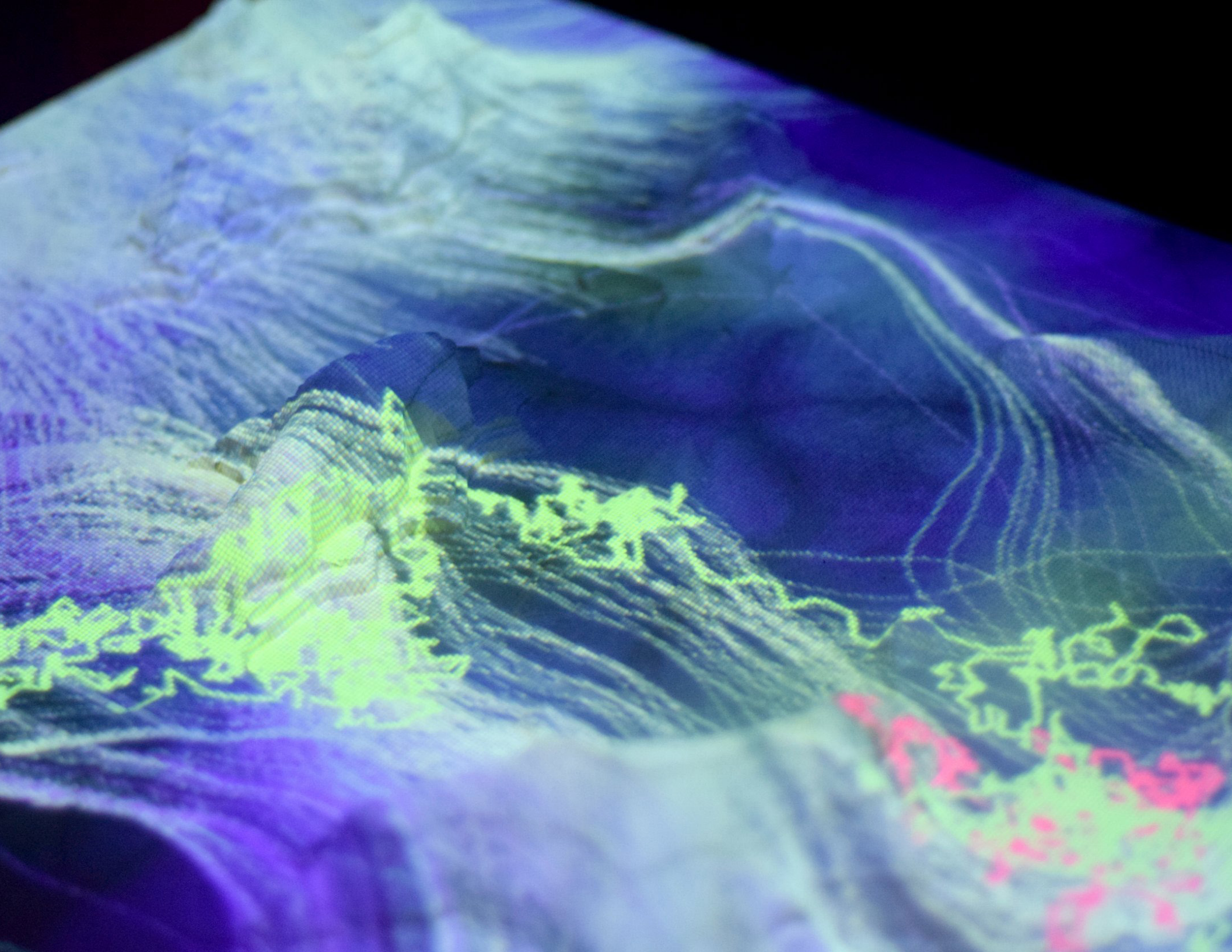
CONCEPT

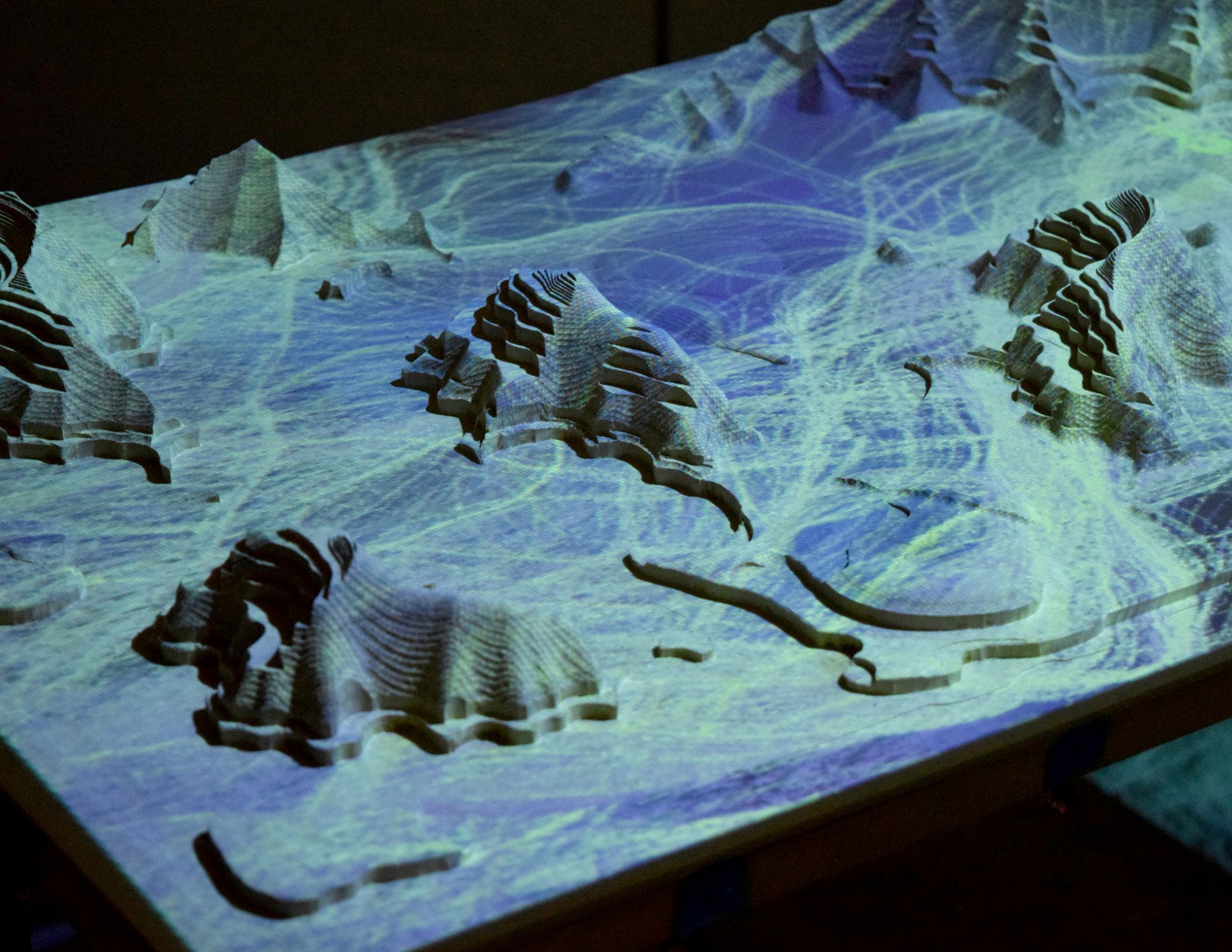
Transience is a tangible landscape that invites users to watch how their proximity and presence to the landscape changes the visual effect on different regions.

PROCESS

We centered our design around the idea of a physical landscape. This piece wouldn't represent a specific region, but would be a topographic map. We wanted viewers to think about the effect their presence would have on a place, and what would happen when they lingered for a long time. We started with sketches and storyboards, mapping out interactions viewers could have with the piece, and where we should build those opportunities for interaction. We created a 3D model of a landscape, and then carved it out of MDF on a CNC machine.

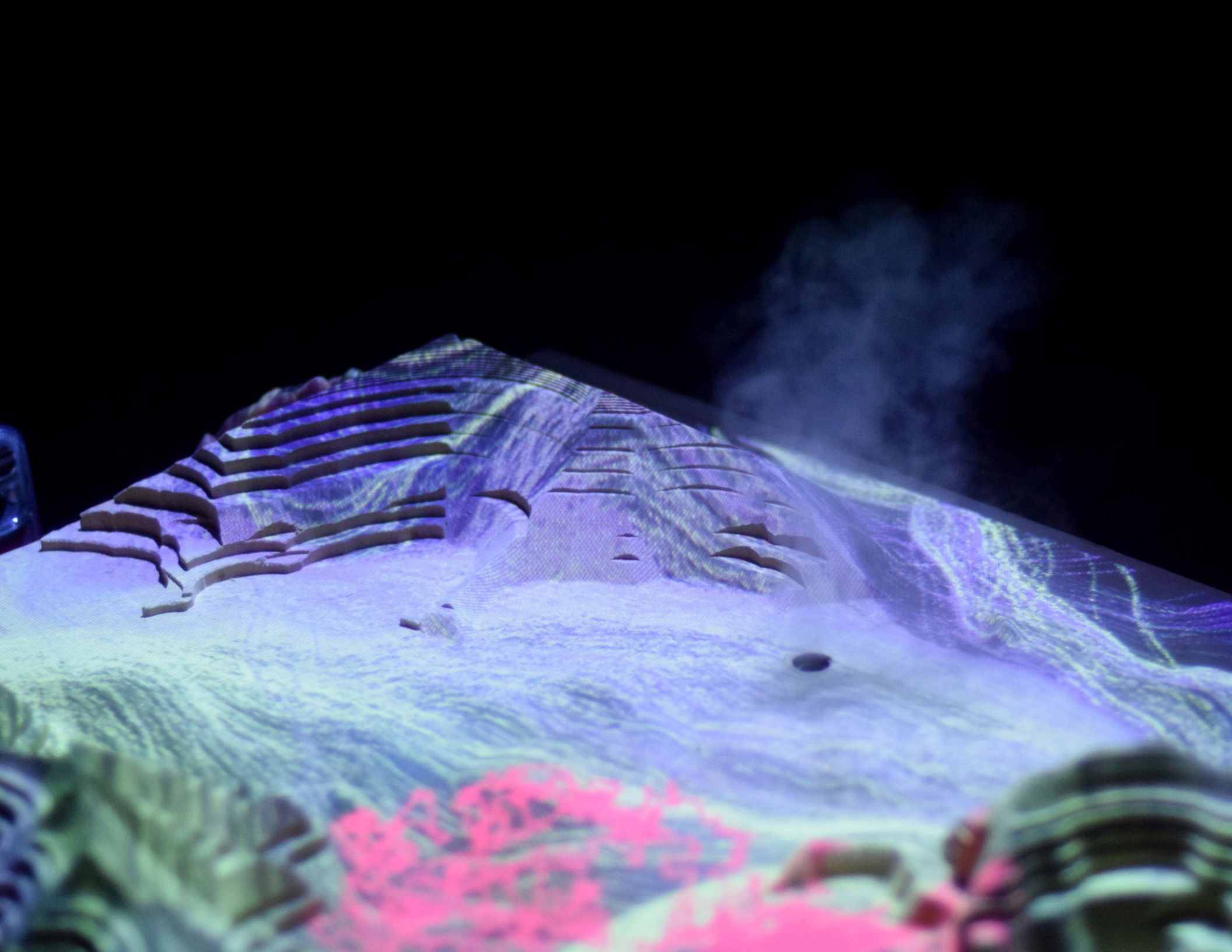
After creating a physical piece, we attached table legs to the landscape, positioning it at a viewer's approximate waist height. From here, we attached an Arduino board (a microcontroller), and wired up several IR (distance) sensors along the side of the table. When viewers approached the table and blocked an IR sensor, we created a visual interaction. We also embedded an ultrasonic mister to the bottom of the table, allowing mist to flow up through a small hole in the landscape.

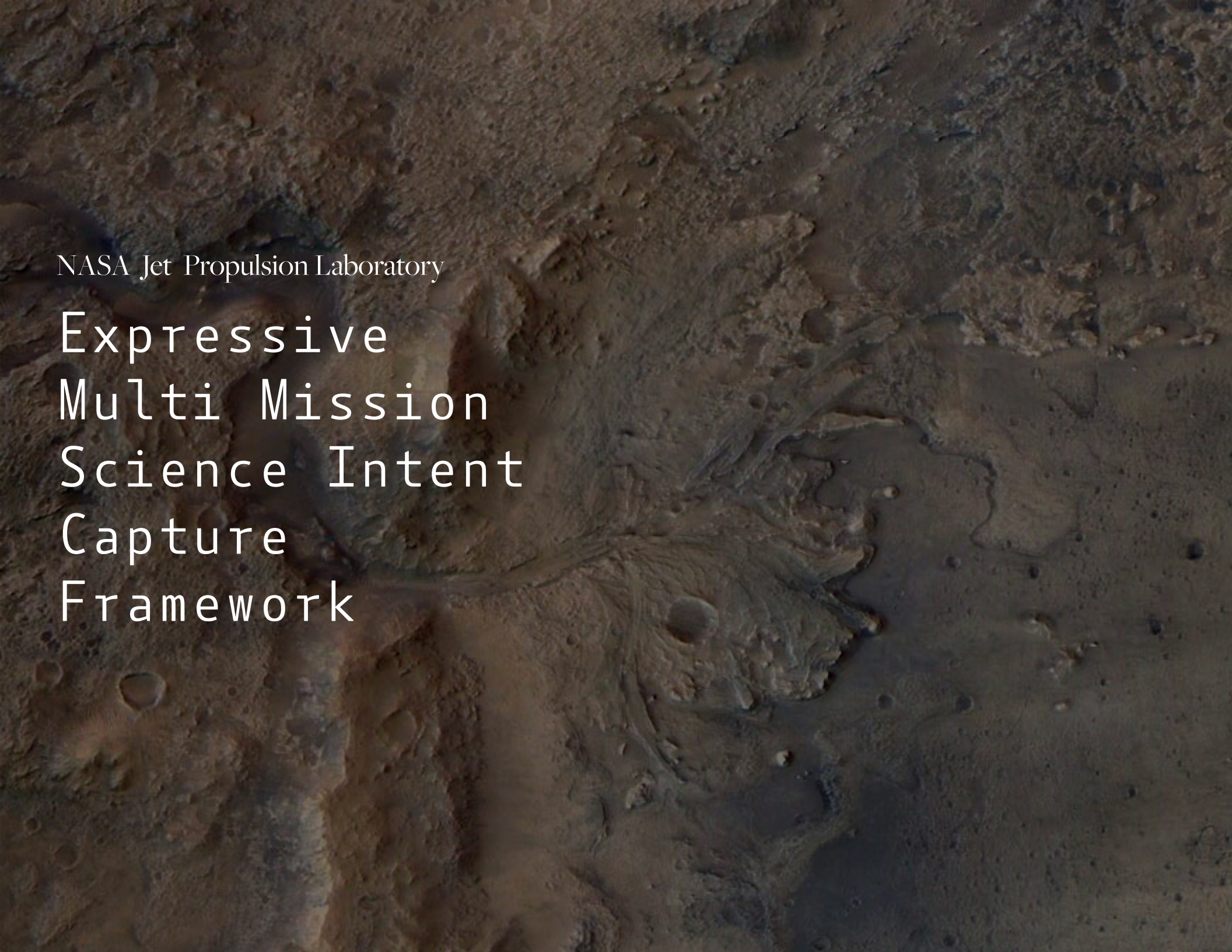




PROGRAMMING

When an IR sensor is activated, I added code to tell the Arduino microcontroller to send data over the Serial port to a Processing sketch. This data was structured as strings, separated by newline characters. In our Processing sketch, I had created a series of different visual events that could be triggered by Arduino. If a viewer was blocking the IR sensor labeled “9”, we would send data to Processing and invoke a function called “eventNine”. This pattern allowed us to create complex, additive drawings on the landscape.





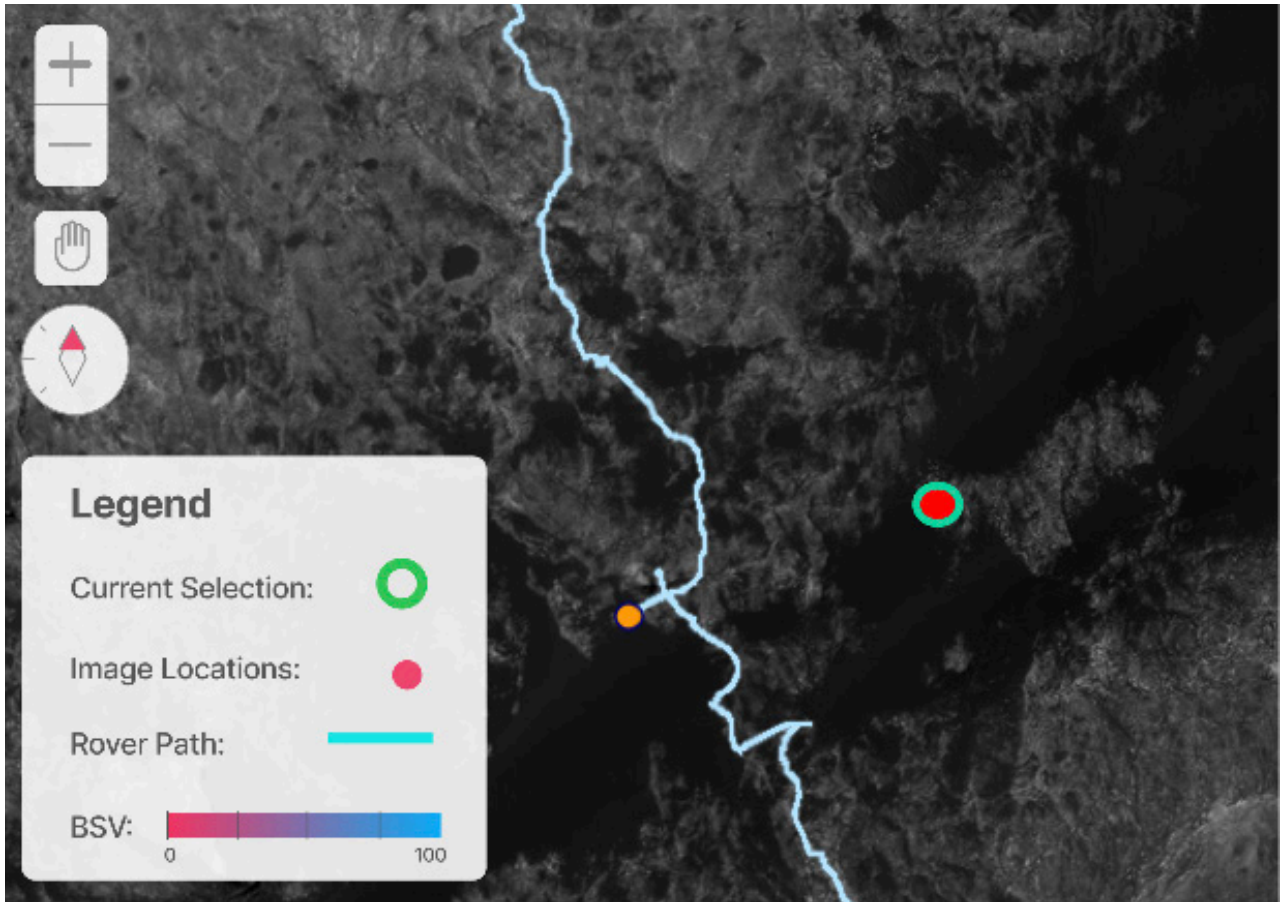
NASA Jet Propulsion Laboratory

Expressive Multi Mission Science Intent Capture Framework

As an intern at NASA JPL, I was tasked with desiging a user interface for targeting scientific intent for high autonomy missions of the future. The interface I designed proposing will allow scientists to create campaigns to achieve their scientific goals through communicating the targeted application of science instruments. A user is able to express their scientific intent by designing their optimal experiment via actionable steps in a campaign.

When a user creates a campaign, they are then able to create a series of conditions to be met when making observations, for example, when taking an image with the ChemCam instrument, the image should only be taken if the rock has identifiable veins.

Once a user has created their campaign, which is a network of preconditions and postconditions, the network can be exported and integrated into a spacecraft's planning and execution system. If certain conditions are met, the spacecraft will autonomously execute one of the predefined campaigns onboard.



Task Creator

Filter Archive Images

Site

Number

Name

Sol

to

Activity ID

Instrument

- Navcam
- Mastcam Z
- Supercam
- Front Hazcam
- Rear Hazcam
- Rear Hazcam
- SHERLOC
- WATSON
- PIXL

Camera Eye

Data Type

- RMI Color Image
- Original Image Product
- LIBS All Actives
- LIBS No Actives
- RAMAN All Actives
- RAMAN No Actives
- Dark Subtracted Spectral Data
- IRSpec

Instrument ID

Active Rules

Add Parameter

Save

11/10/21

Simulation Preview

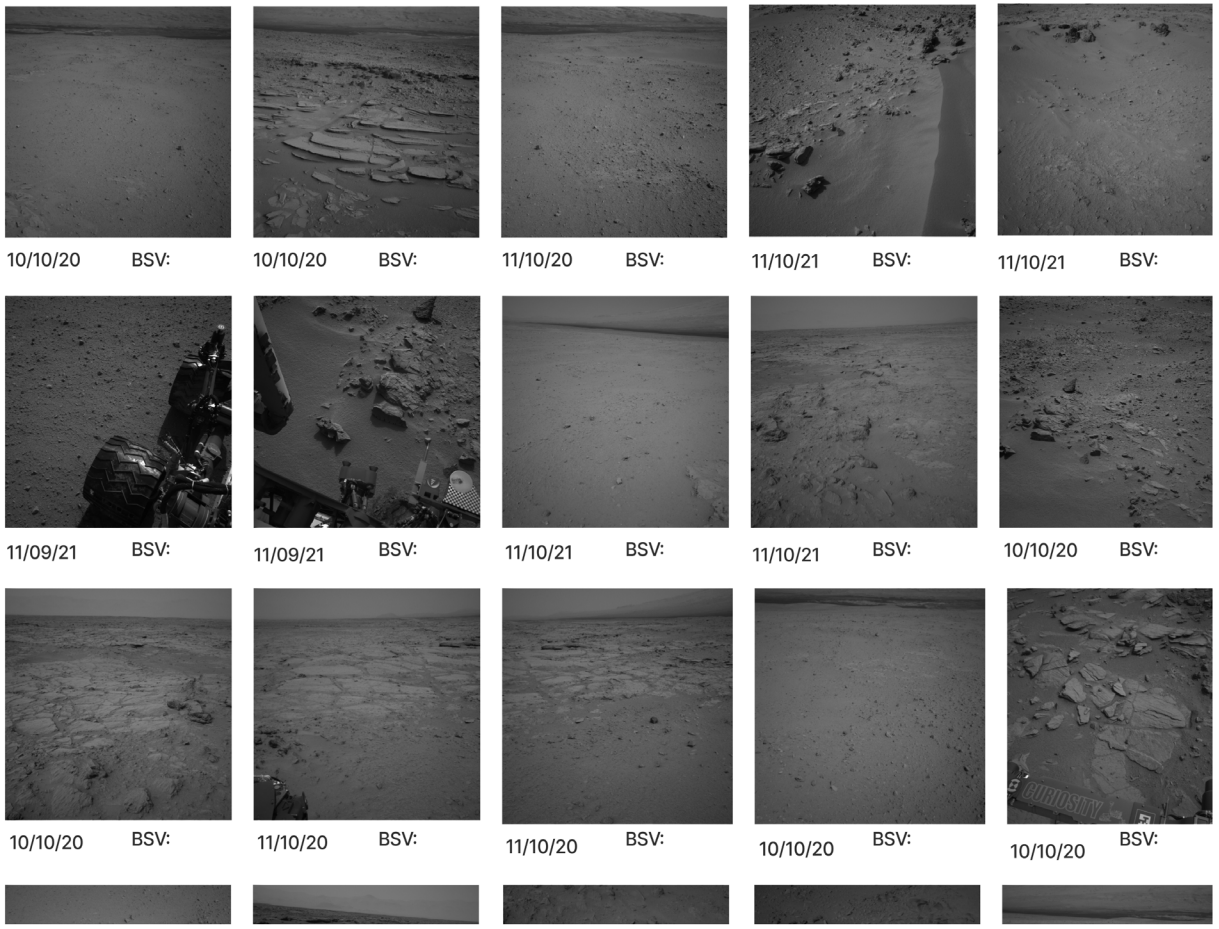
Images | 3D | Split Screen

Meets Rules: 1,570

Science Value Filter

LOW | MEDIUM | HIGH | VERY HIGH

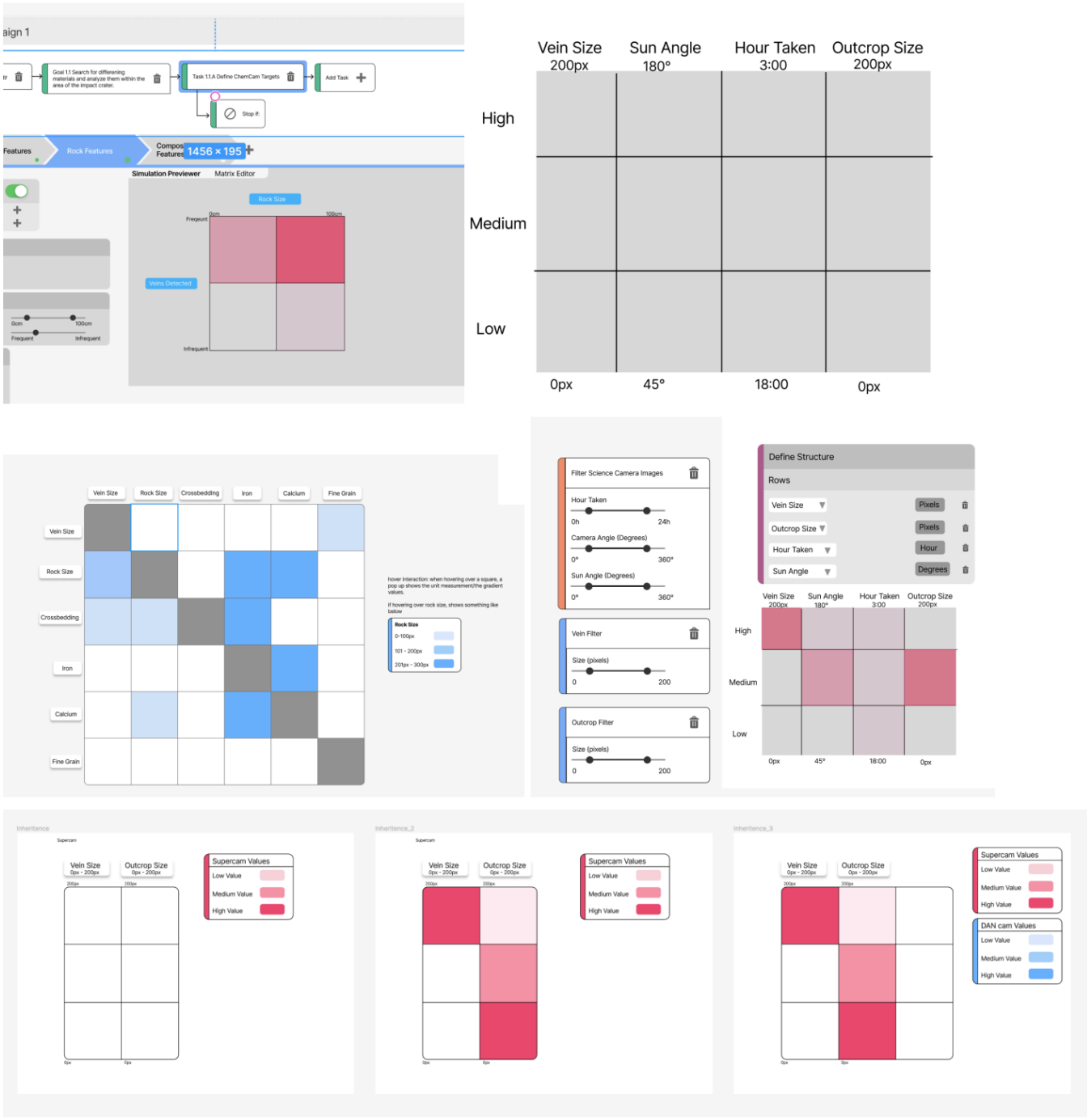
Site: Lorem Ipsum



Science Value Editor

A large portion of my work centered around a matrix view, trying to design a way for users to express their scientific intent by plotting out ranges of data and asking users to select the most valuable area of the range. I worked through several iterations of this, from an initial basic two by two matrix, then moving into a co-occurrence matrix, and finally a hierarchical view, which allows users to create dependencies between the matrices.

From user tests and design discussions, we decided we needed a way for users to indicate dependencies on different matrices. This would allow a user to show relationships between different rules, for example, maybe the scientist cares more about rock size if the rock has high levels of sulfur. These dependencies should be able to stem from any value in any matrix, and branch to allow multiple dependencies, which will change the scientific value of the observation.



Task Creator

Set parameters to define features of interest

Select Instrument

Add Parameter

Save

Sulfur

Amount

0 instances 200 instances

Continuous

Add SCI_VAL

Low Value
Medium Value
High Value

200
132
66
0

Iron

Amount

0 instances 200 instances

Continuous

Add SCI_VAL

Low Value
Medium Value
High Value

200
132
66
0

Parameterization Results

Images

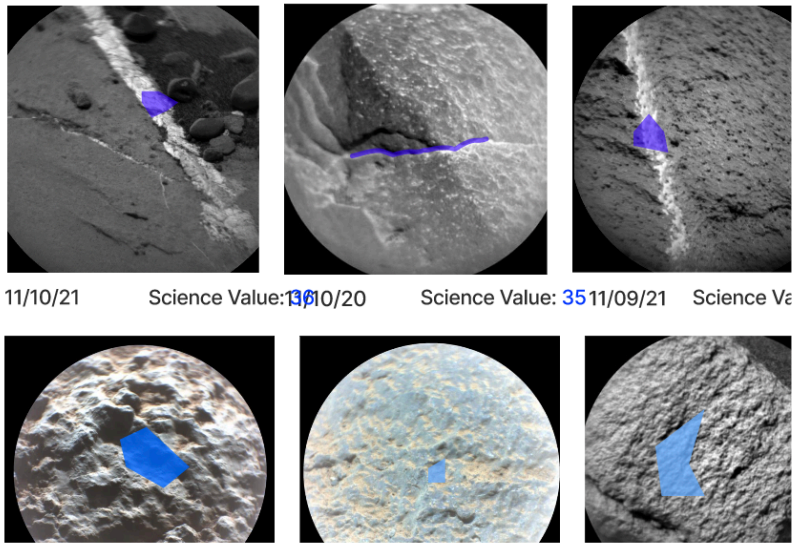
Map

Meets Rules: 1,570

Science Value Filter

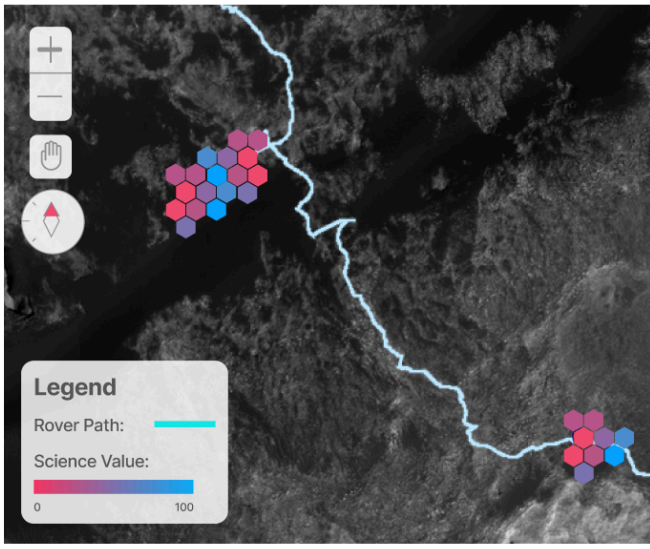
LOW MEDIUM HIGH

Site: Lorem Ipsum

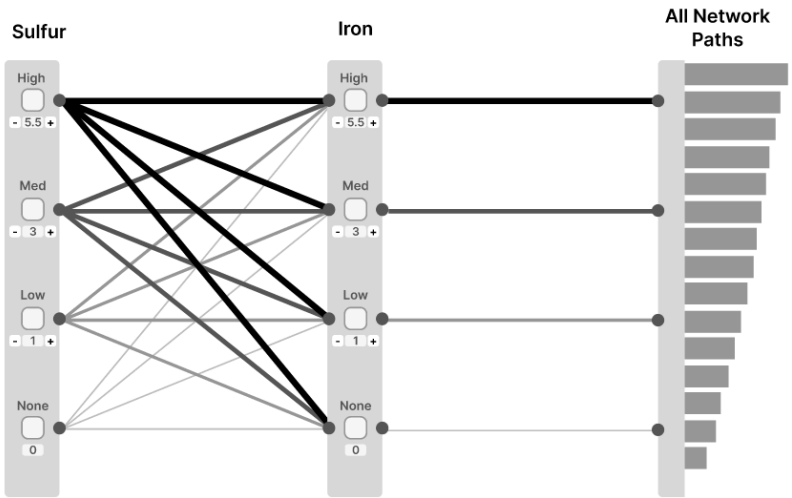


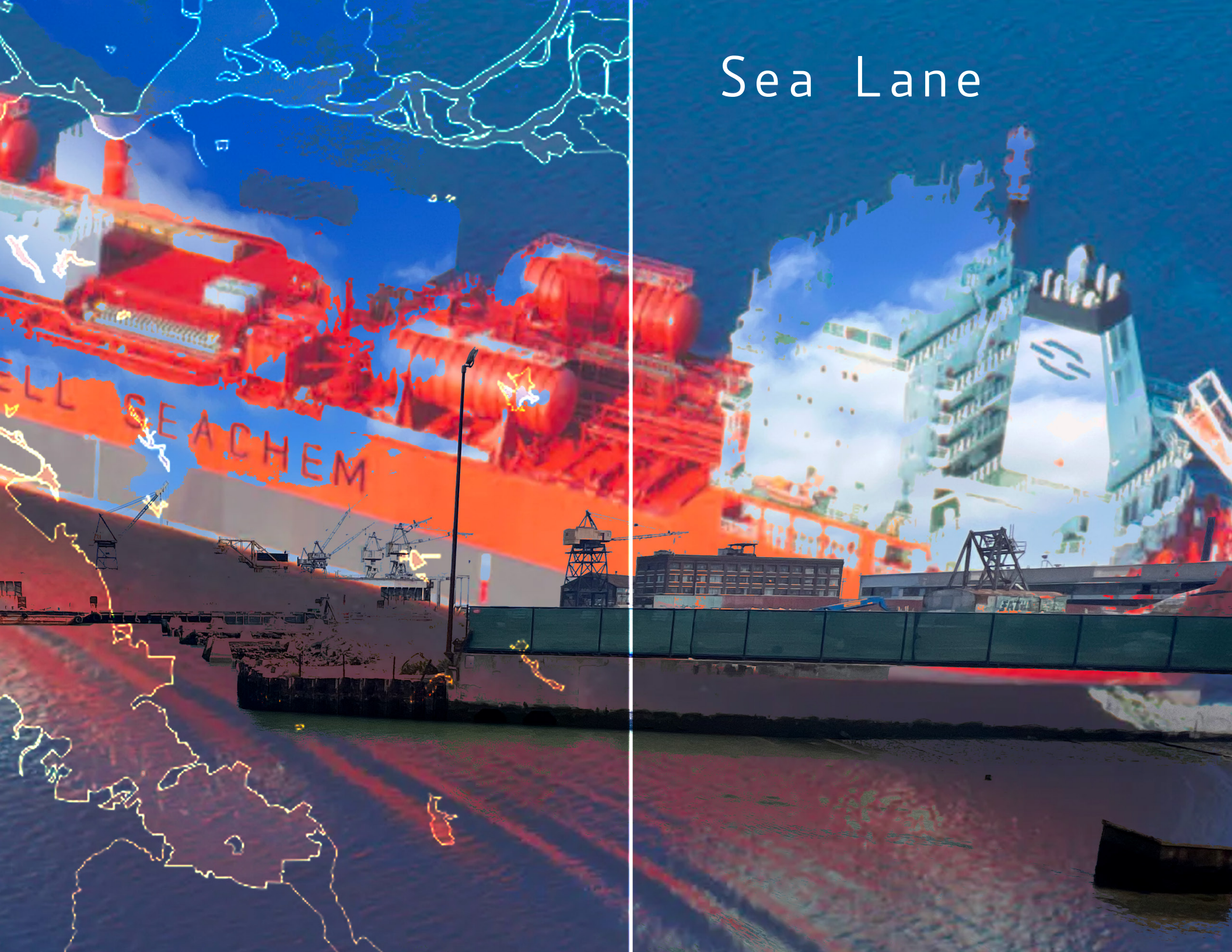
11/10/21 Science Value: 36 10/20 Science Value: 35 11/09/21 Science Va

Site: Lorem Ipsum



Science Value Editor




Sea Lane
SEACHEM

Sea Lane is a research project and sculptural installation that visualizes local maritime data in a given area. While the transportation of chemicals across bodies of water may not be at the front of everyone's mind, Sea Lane invites viewers to engage with a visual representation of the "risk" of chemical movements at a given moment in their location. To achieve this, the project is made of a location-specific sculpture that houses a data visualization. The project is able to model "risk" based on a few different sources of data such as the sculpture's location and population/demographics of the area, maritime ship data in the sculpture's port, and derived information about the chemical tankers in the area (ship year, what it's carrying). All these parameters are run through an algorithm that weighs the risk of spills in the area, and presents this information to the viewer. The project intends not to shame the viewer or try to scare them, but to invite them to think about all of our roles and responsibilities as consumers participating in this global activity. Likewise, the project does not seek to end maritime traffic, but to create a lasting impression on viewers about the risks and effects of chemical tankers on our planet, something most people are unaware of.

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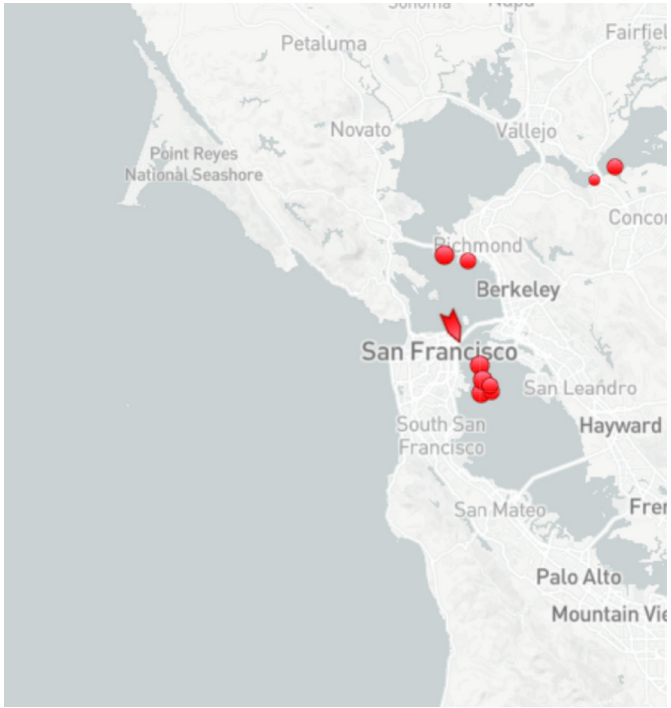
Through the design and development of Sea Lane, I learned a lot about research, and how to come up with information when information is limited. Because a lot of maritime data is behind a paywall, I had to learn to piece together data from other sources, as well as use historical data to build a context around the project. I feel the most significant outcome of the project is not the installation itself, the code, or the sculpture, but the documentation of the piece and the writing about it. My thoughts on how to say something through my work have been structured. I hope that through my research, my writing, and my work, viewers will think about their mark on this world, and the role they play in its transformation over the next several hundreds of years.



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EXPERIENCE

UX DESIGN & ENGINEERING INTERN NASA JPL, PASADENA, CA
May 2022 - August 2022

Designed and developed initial prototypes of an interface to capture the scientific intentions of experiments to be executed autonomously on deep space robots, i.e. Mars rovers and planetary orbitors. Completed several user interviews with scientists at NASA, iterated multiple designs based on their feedback. Developed a plan to integrate the interface into an existing task networking system for autonomous exploration.

SENIOR SOFTWARE ENGINEER LINKEDIN, SAN FRANCISCO, CA
November 2019 - August 2021

Tech lead of four engineers building and managing all social features (reacting, commenting, sharing). Built a machine learning text feature to present "comment starters" based on a user's posted content, resulting in a 3% sitewide increase in comments. Developed the prototype of Live Audio Events, allowing users to join audio rooms and speak to large groups of listeners in real-time. Worked closely with design, product and data science teams to iterate on designs, A/B test features, and make data driven decisions about product ramps.

SOFTWARE ENGINEER LINKEDIN, SAN FRANCISCO, CA
June 2018 - October 2019

Built the reactions feature for LinkedIn Web, used by millions of users every day. Rewrote the sitewide commenting experience to use ES6 classes and solved several data inconsistency issues.

EDUCATION

UNIVERSITY OF CALIFORNIA, BERKELEY
MASTER OF DESIGN | August 2021 - December 2022

UNIVERSITY OF CALIFORNIA, LOS ANGELES
B.A. DESIGN, MEDIA ARTS 2018

SKILLS

Figma, Adobe Illustrator, Adobe InDesign, Adobe Photoshop, Adobe AfterEffects, Tableau, Javascript, Python, Java, Processing, Arduino