Adham Chakohi’s Portfolio

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Analysis of Rap Lyrics

Python | April 2020

Analysis of Rap Lyrics is a solo project made to analyze the lyrics of *Kanye West*, *Kid Cudi*, *Jay-Z*, and their respective rap supergroups *Kids See Ghosts* and *The throne*. The discographies were scraped from lyrics.fandom.com using Beautiful-soup, analysized using Networkx, Gensim, Spacy, and Nltk, and then visualized using Chord and Matplotlib. The aim of the project is to compare the topics the rappers talk about in their own discographies against the topics they talk about when they come together as the supergroup.

Change of topics between rappers and their supergroups

The Throne

Kanye West:
Feelings
his mother
light (as in god's light)

Jay-Z:
Girls
Money
The good Life
N*****

→ **The Throne**:
Being black in America
Religion
"balling"

Kids See Ghosts

Kanye West:
Feelings
his mother
light (as in god's light)

Kid Cudi:
Night
being "wavy"
being young

→ **Kids See Ghosts**:
"Moving Forward"
Ghosts
being free

Diagram of the co-occurencies of salient terms for Kanye West

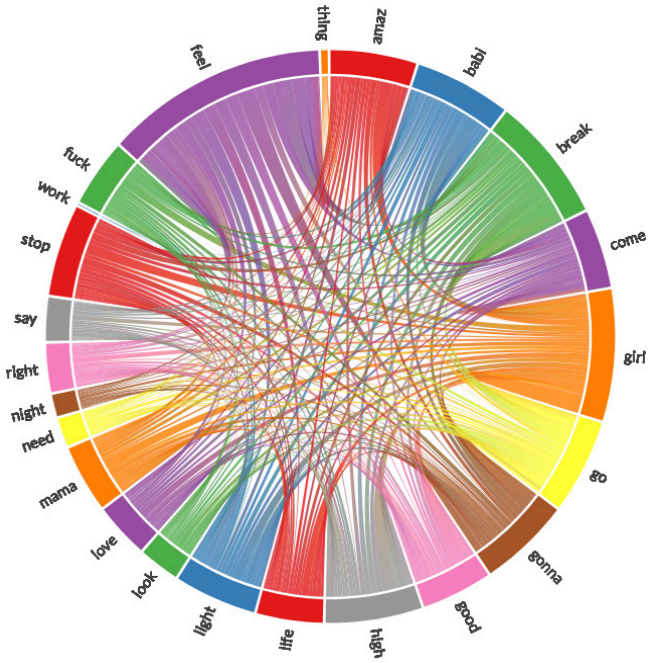
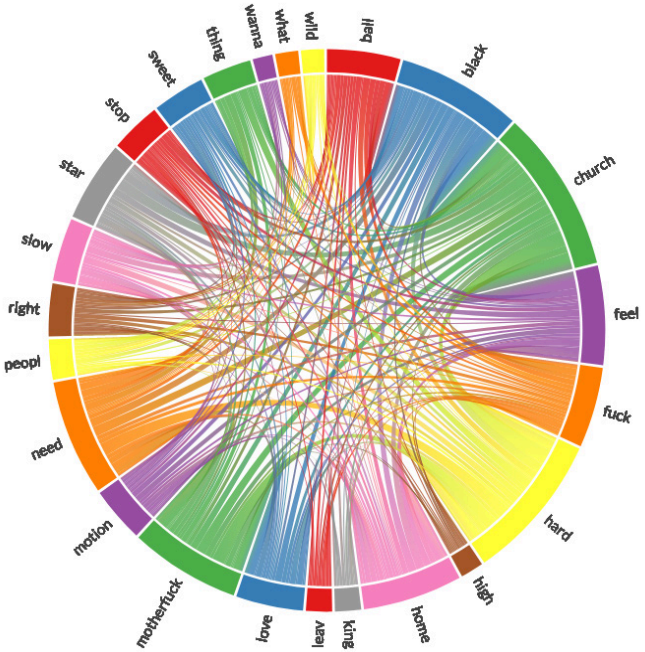
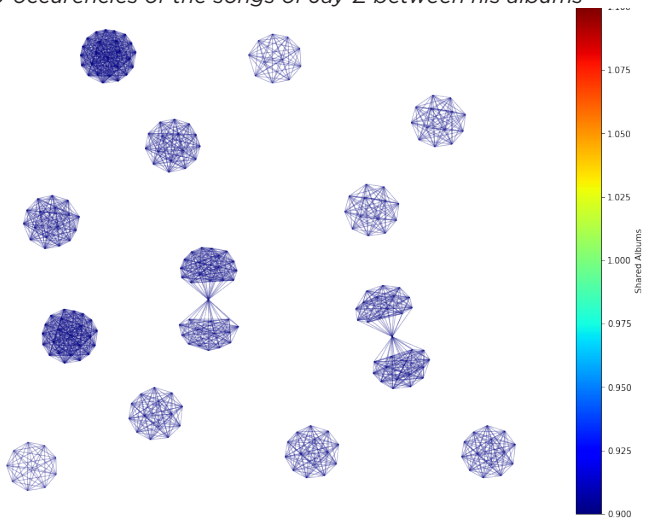


Diagram of the co-occurencies of salient terms for The Throne

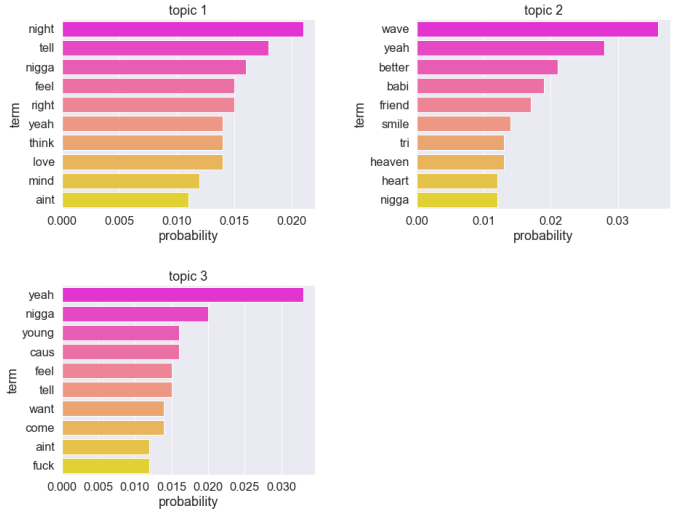


Interactive chord diagrams can be found at: chakohi.github.io/Chord/
Jupyter notebooks can be found at: github.com/chakohi/RapLyricsAnalysis

Co-occurencies of the songs of Jay-Z between his albums



Topic Modeling of the Lyrics of Kid Cudi

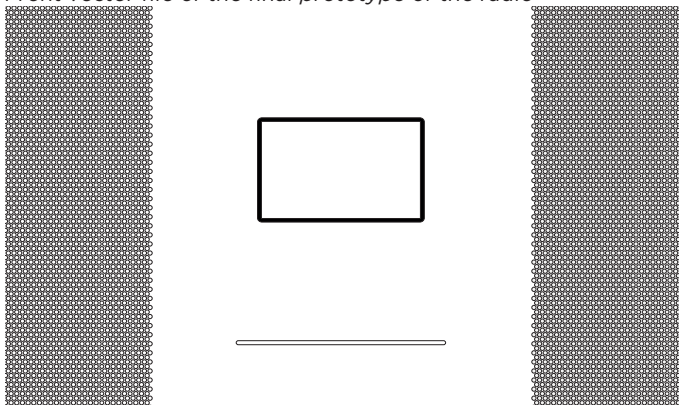


Throwback Radio

Arduino, RFID | February 2020

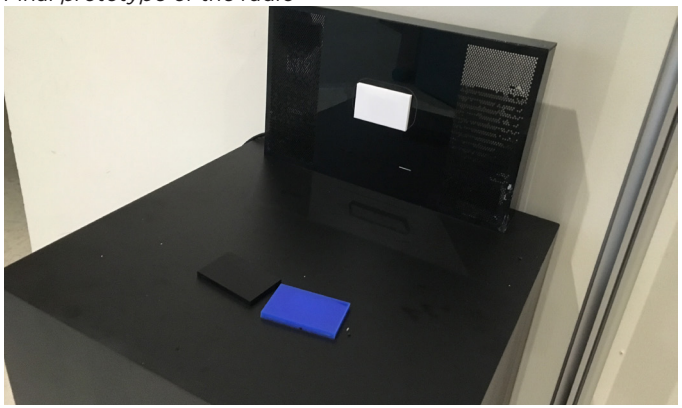
Throwback Radio is a solo project. Radio is an analogue continuous medium; it can be tuned to any frequency even if nothing is broadcasted on it. **Throwback Radio** attempts to solve that problem by approaching it from the prespective of a more discrete approach. Instead of manually tuning the radio, it is automatically tuned with the use of cards. A user would have a collection of cards, each corresponding to a specific radio channel. The user would then attach the cards to the front of the radio where it would magnetically stick. The radio would identify the card, and tune the frequency to that indicated on the card.

Front vector file of the final prototype of the radio

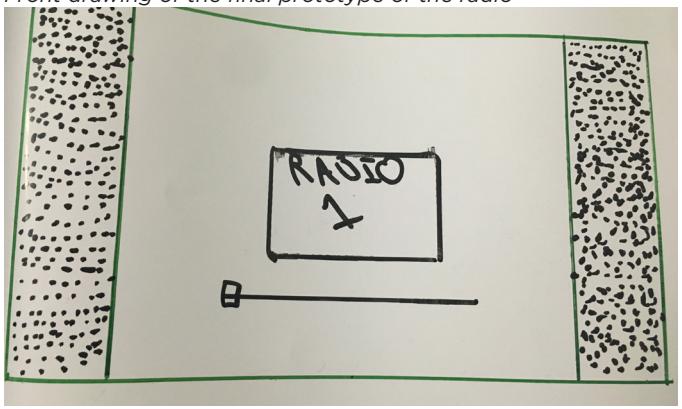


Throwback radio is constructed using laser-cut black acrylic. The front panel is laser-engraved with an indication of where to place the card. It uses an Arduino UNO, with an RFID reader shield. The arduino is connected to a radio receiver, and a stereo 20W amplifier. Four 5W 8Ω speakers are wired to the amplifier. Each card is made out of 2 squares of laser-cut acrylic, with an RFID tag sandwiched in between.

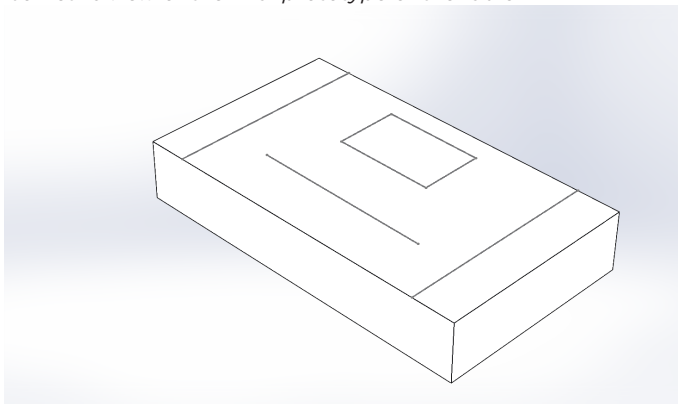
Final prototype of the radio



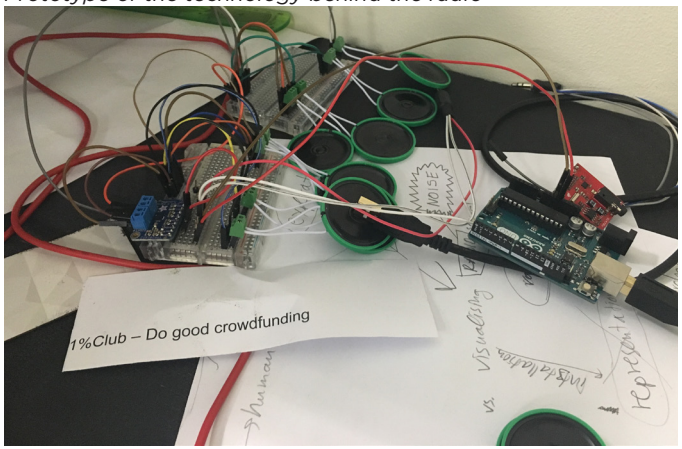
Front drawing of the final prototype of the radio



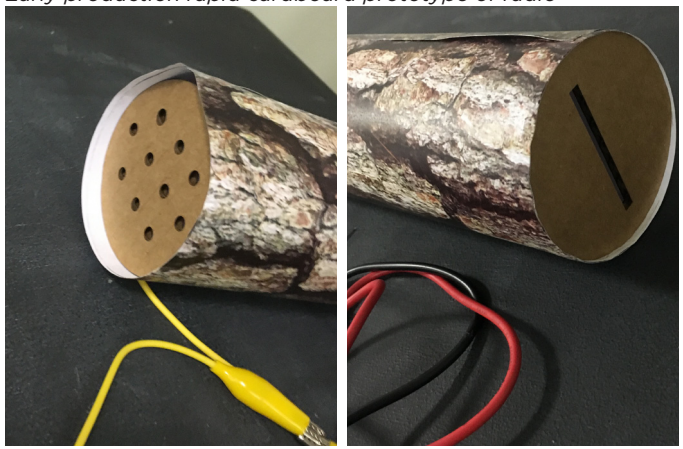
Isometric view of the final prototype of the radio



Prototype of the technology behind the radio



Early production rapid cardboard prototype of radio



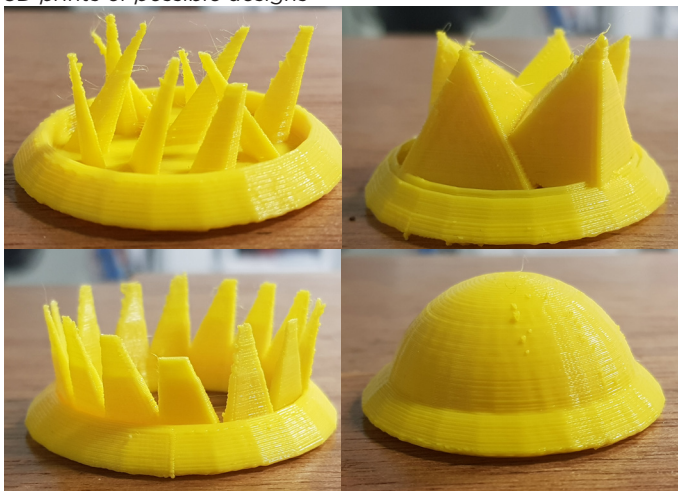
PanoptiCo.

Python, Arduino, openCV | May 2020

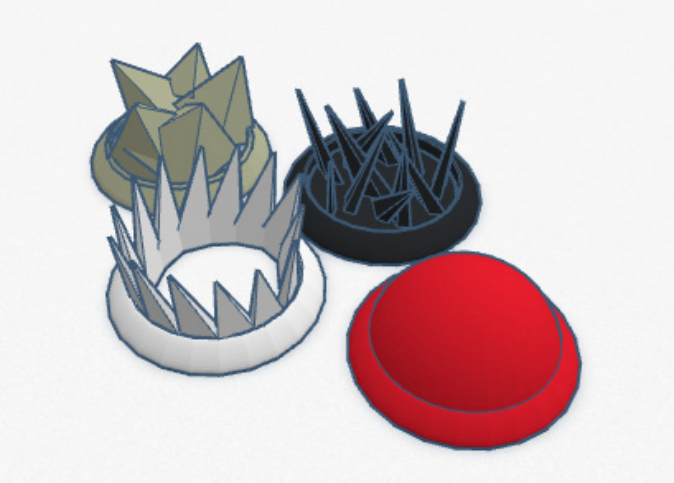
PanoptiCo. is still in progress, made as a solo capstone project for the Interactive Media department at New York University Abu Dhabi. The idea of the project was inspired by the prevalence of surveillance in our everyday lives. I live on a campus with 1500 students and 2000 CCTV cameras. This inspired the initial design of the project, resembling that of a traditional CCTV semi-spherical camera. However, in such CCTV cameras, the target of the surveillance cannot see where the actual camera is directed, all that person can see is a glossy smooth black sphere. I wanted to reverse that idea in this project, where a camera specifically is pointed at and follows the viewer. Later designs (pictured left) were more decentralized, where a user would walk through a field of 'shards', some of them containing cameras on top that would follow the closest viewer to them. The design of these shards is inspired by the semiotics of possible nuclear waste sites, where the architects need to communicate a sense of danger and unease without the use of language or common symbols.

The 'shards' are made out of laser-cut acrylic. The positions of the viewers are detected using openCV utilising webcams mounted on the ceiling. Each shard contains an Arduino with an XBee module to communicate with the central computer. These Arduinos are controlling stepper motors which turn the CCTV cameras.

3D prints of possible designs

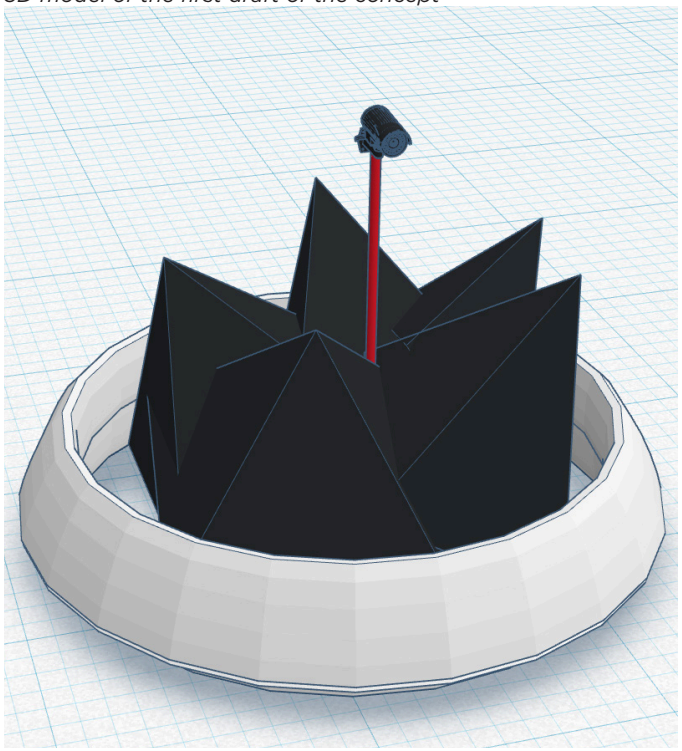


3D models of possible designs



Rapid cardboard prototype of final design

3D model of the first draft of the concept

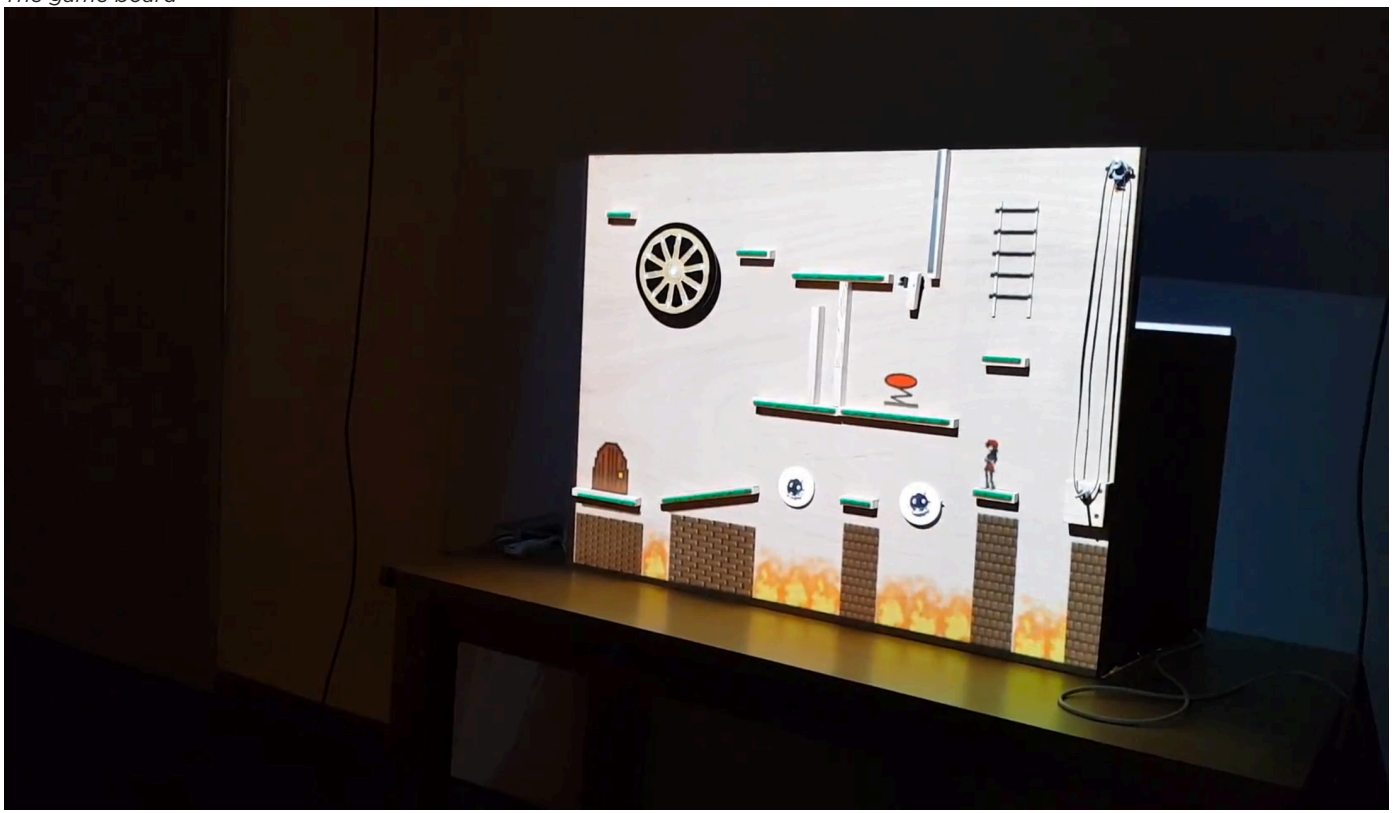


The Game in Life

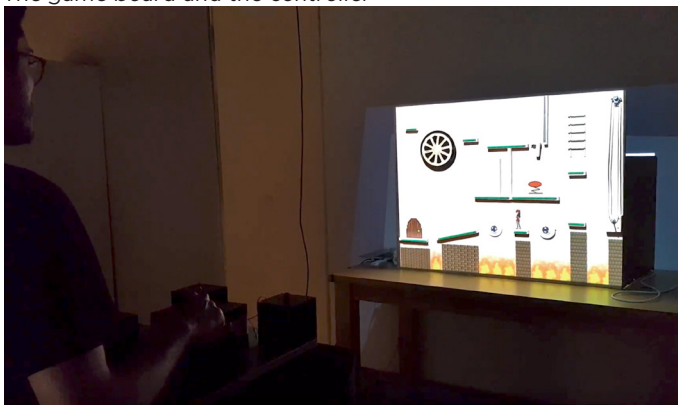
Arduino, Processing, Xbee | May 2018

The Game in Life is a project made in collaboration with Neyva Hernandez. It is an attempt at bringing games to the physical world. This particular game is a simple platformer where the player helps a character get from point A to point B. The game is projection mapped on a sheet of plywood, which contains physical blocks to the character E.g a closed trap door. The player then has to use the controller to remove such physical blocks from the character's way in order for the character to get to its destination. The physical blocks consist of 3 wheels which will transport the character if the player rotates them using the controller, a trap door which can be opened using the controller, and an escalater which will only move when a button is pressed on the controller. The project was exhibited at the Interactive Media Spring Showcase.

The game board



The game board and the controller



The controller

The Game in Life is centered around a Processing program which runs the game. The Processing program is wired to one Arduino Uno which controls the servos and motors on the board, and wirelessly connected through XBee to another Arduino Uno that receives input from the controller. The Processing program is run through Isadora for projection mapping.

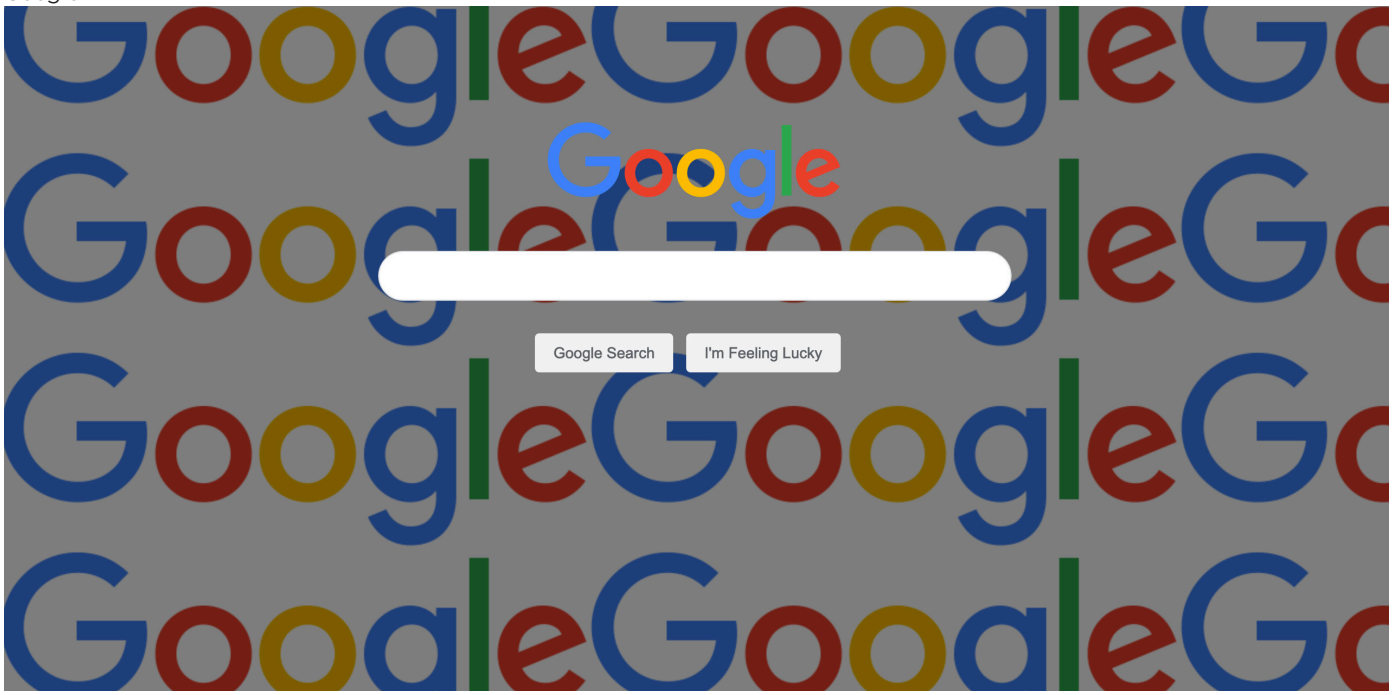
Nineties

HTML, CSS, JavaScript | December 2019

Nineties is a solo project. It is an open source JavaScript extension for the Firefox web browser that brings the aesthetic of an early web webpage to modern ones. Early users of the web tend to have a certain feeling of nostalgia for it, and **Nineties** attempts to satisfy that feeling by dynamically bringing that aesthetic, to the modern web. **Nineties** can be installed from: addons.mozilla.org/en-US/firefox/addon/nineties/

Wikipedia

Google



Nineties is coded in vanilla JavaScript. It works by:

- Giving the cursor a fire animation Changes the document font to Comic Sans, and makes paragraph text green
- Tiles the main image of the page as the background. If the page has no images, a standard gif is used
- Adds ‘fun’ characters to headers
- Thickens borders of tables
- Ensures links are underlined and bright blue

VirtualDissent_hyper.txt

HTML, CSS, JavaScript | May 2020

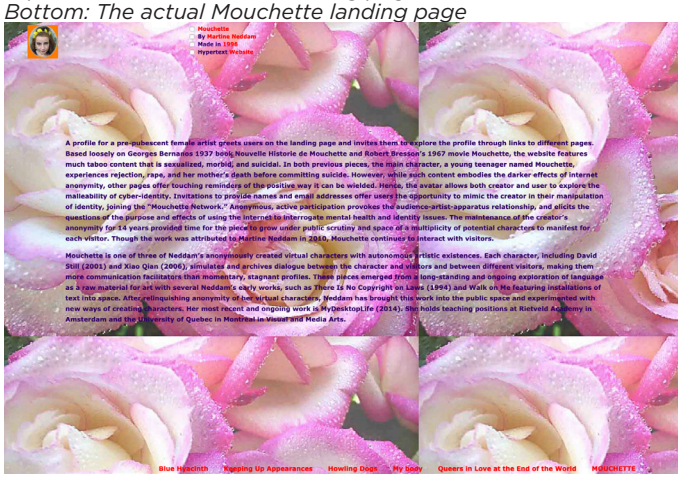
VirtualDissent_hyper.txt is made in collaboration with Maria Paula Calderon, Neyva Hernandez, and William Mlekush. The project is a virual exhibition of hypertext art curated by us. Each art piece exhibited has its own curatorial page which describes the piece. The design of the curatorial pages is directly inspired by the landing page of the piece exhibited, as to create the feel of an exhibition room.

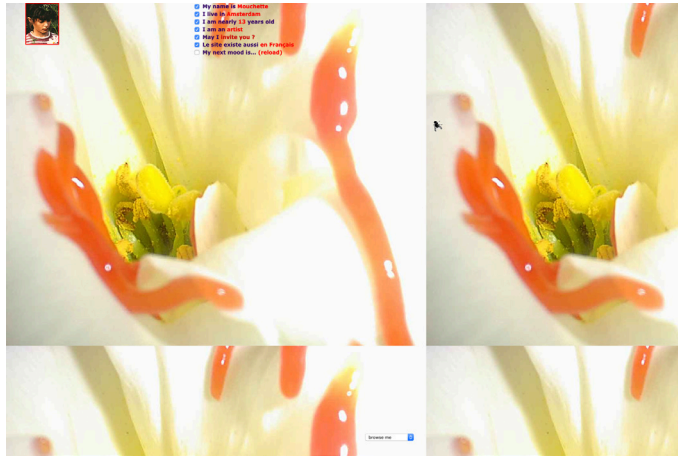
Each piece in the exhibition enters into a conversation about issues such as identity, sexuality, love, race, gender, socioeconomic inequality, queerness, death, anonymity, and bodily autonomy. **VirtualDissent_hyper.txt** exhibits six pieces; *Queers in Love at the End of the World* by Anna Anthropy, *Mouchette* by Martine Neddam, *Blue Hyacinth* by Pauline Masurel and Jim Andrews, *My Body* by Shelly Jackson, *Keeping Up Appearances* by Mendi Lewis Obadike, and *Howling Dogs* by Porpentine.

VirtualDissent_hyper.txt can be found at: chakohi.github.io/virtualdissent/
Its source code can be found at: github.com/chakohi/virtualdissent/
The exhibition catalogue can be found at: https://drive.google.com/file/d/1EnqZdEihFenM4G1U0hDKLUgOIA1L93rt/view

The landing page of the exhibition

Top: Our recreation of the landing page of Mouchette
Bottom: The actual Mouchette landing page



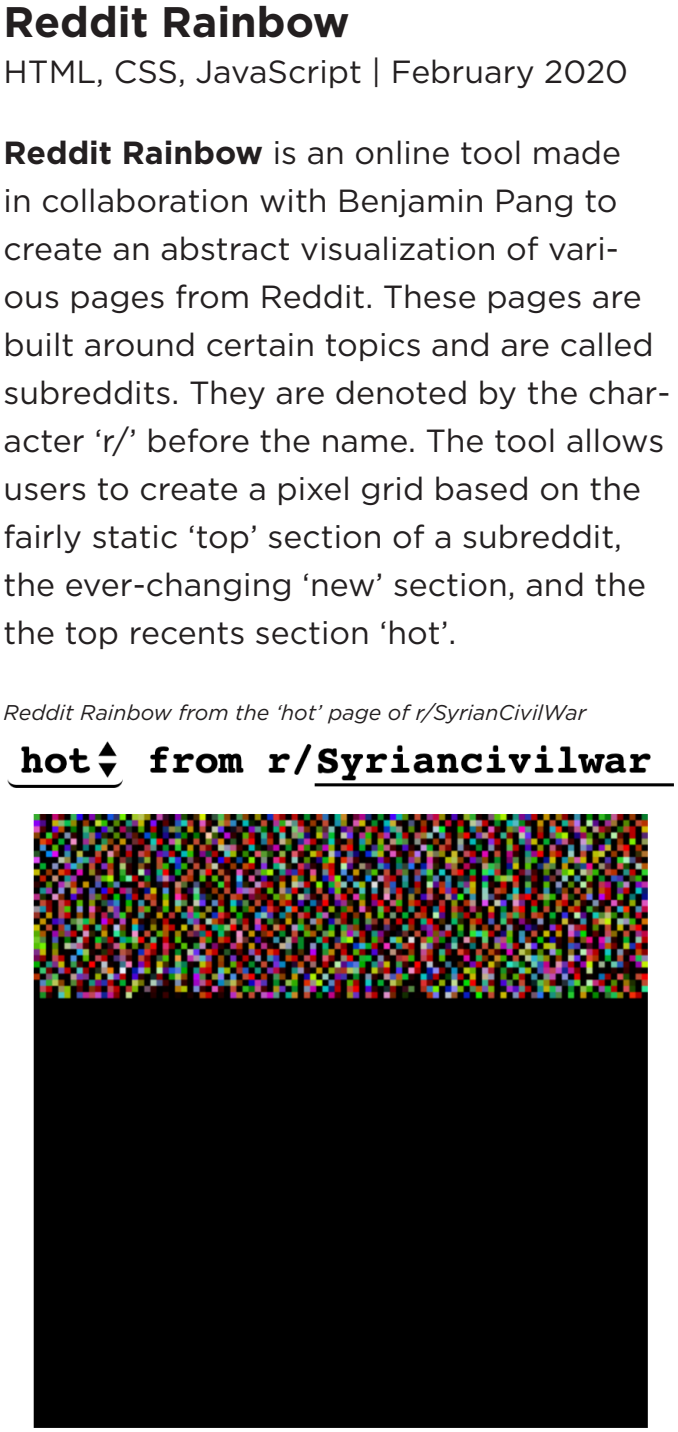


Reddit Rainbow

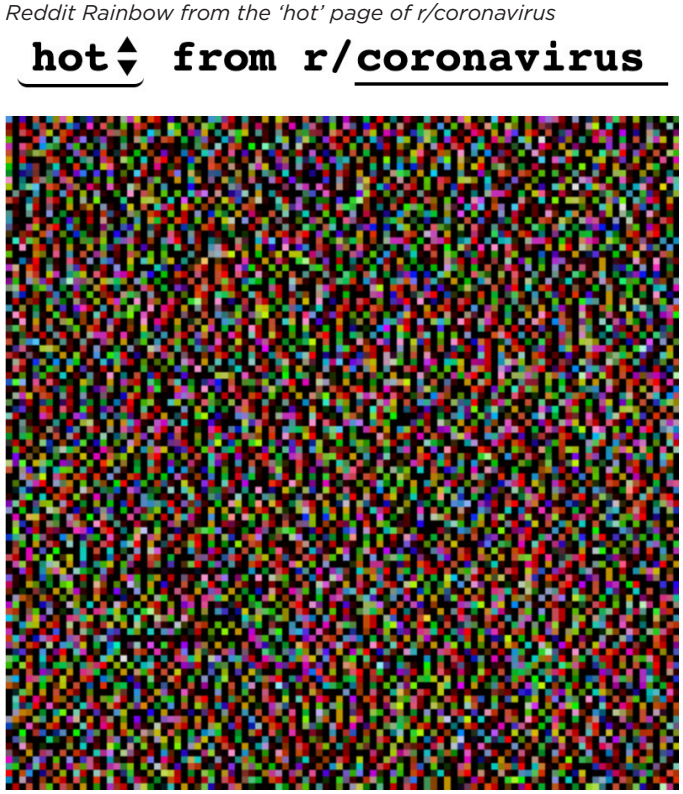
HTML, CSS, JavaScript | February 2020

Reddit Rainbow is an online tool made in collaboration with Benjamin Pang to create an abstract visualization of various pages from Reddit. These pages are built around certain topics and are called subreddits. They are denoted by the character 'r/' before the name. The tool allows users to create a pixel grid based on the fairly static 'top' section of a subreddit, the ever-changing 'new' section, and the the top recents section 'hot'.

Reddit Rainbow from the 'hot' page of r/SyrianCivilWar

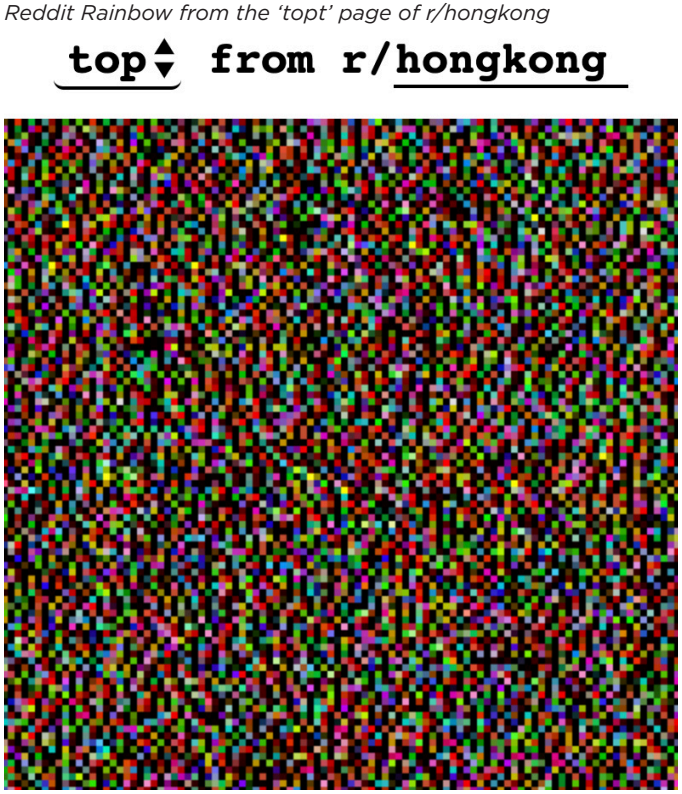


Reddit Rainbow from the 'hot' page of r/coronavirus



Reddit Rainbow is made using vanilla JavaScript. Upon user input of a subreddit, post titles and comments are fetched using the JavaScript Reddit API wrapper Snoowrap, and then stripped of any non-alphabetical characters. Each letter in the set of words is converted into a value between 1 and 255. Grouping the values of 3 letters together gives an RGB value, which is then used to create a pixel on an HTML canvas. The project is open source and the code and demo can be found at github.com/molarmanful/rainbow

Reddit Rainbow from the 'topt' page of r/hongkong

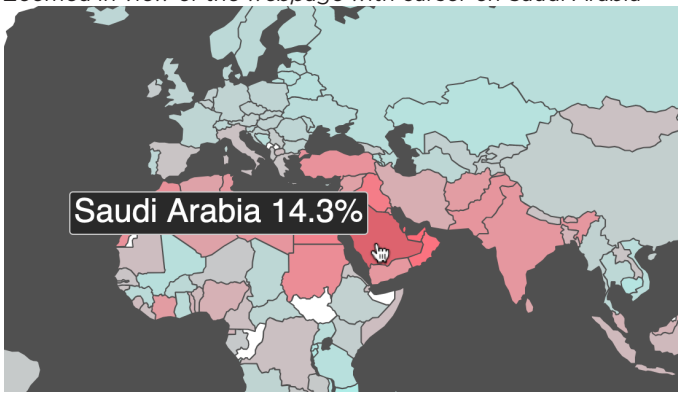


The project creates a unique piece of abstract art for each instance of its use. It takes the topics discussed in subreddits, and the meaning behind each word and abstracts them. The height of the pixel grid created while using the 'hot' and 'new' sections indicates the level of activity of the subreddit. Dormant subreddits will have a shorter grid, due to the lack of recent information in the subreddit.

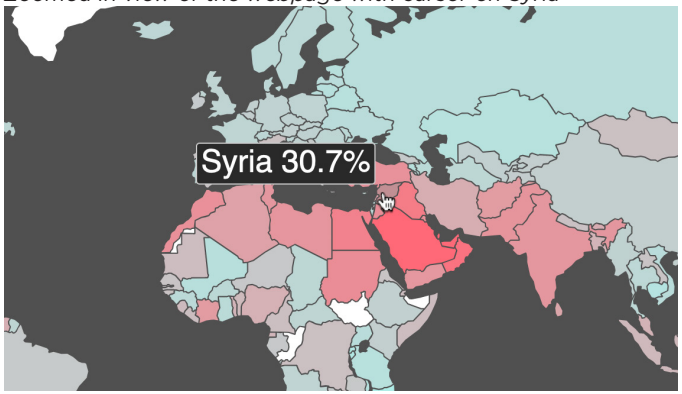
Visualizing Gender Disparity

HTML, CSS, jQuery | November 2018

Zoomed in view of the webpage with cursor on Saudi Arabia

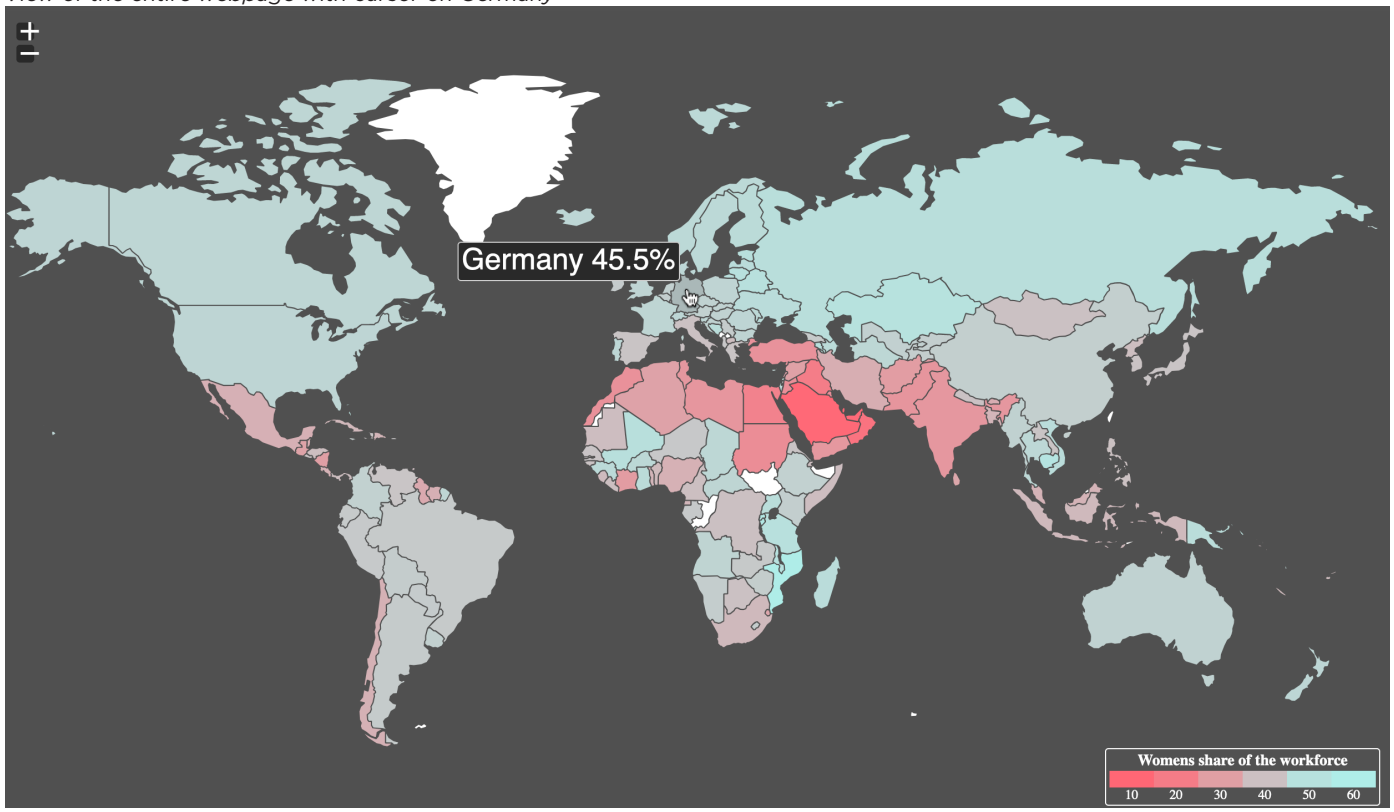


Zoomed in view of the webpage with cursor on Syria



Zoomed in view of the webpage with cursor on the US

View of the entire webpage with cursor on Germany



Visualizing Gender Disparity is a solo project. It is an open source website that attempts to help visualize the global gender disparity in the labour force. It displays women's share of the labour force on a world map. The data is sourced from the United Nations Statistics Division, from their Gender Info 2007 database. The project can be viewed at chakohi.github.io/share, and the code can be viewed and forked at github.com/chakohi/share.

The data was downloaded as a csv file, it was scrubbed, pertinent information extracted and then converted to JSON using python. Then, using jQuery and jVectorMap, the data was visualized onto a world map. The data indicated that there are only 15 countries with a female share of the labour force over 49%, of them only 4 countries were over 50%, Burundi, Cambodia, Mozambique, and Rwanda

Burj Al Fanteer

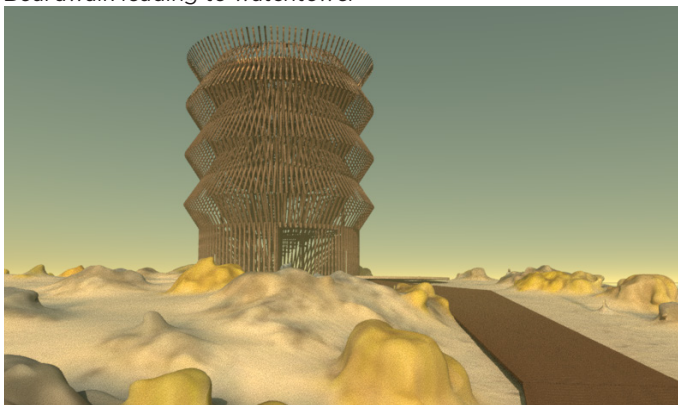
3D Model | June 2019

Burj Al Fanteer was made as part of my work with the NTSI lab. It is a modular boardwalk system oriented around an educational and contextual experience culminating in a watchtower. The project is proposed to be built at the Al Wathba Wetland Reserve in Abu Dhabi, UAE. The watchtower and boardwalk design are inspired by the trunk of a palm tree and wings of a falcon respectively, both being semincal species to the Emirati culture.

The name “Fanteer” in the Emirati dialect means flamingo, the reserve’s most significant species. The tower contains a steel spiral staircase on the inside that leads up to a viewing platform. The tower’s exterior is made of interlocked wooden planks that provide a curated view of the surrounding wetlands while experiencing complex light interactions. At singinifcant locations round the reserve, angle-adjusting smart mirrors are installed that use sunlight reflections to ‘blink’ at visitors at the top of the watchtower to direct their attention.

View of the watchtower, rendered through the reserve

Boardwalk leading to watchtower



Boardwalk

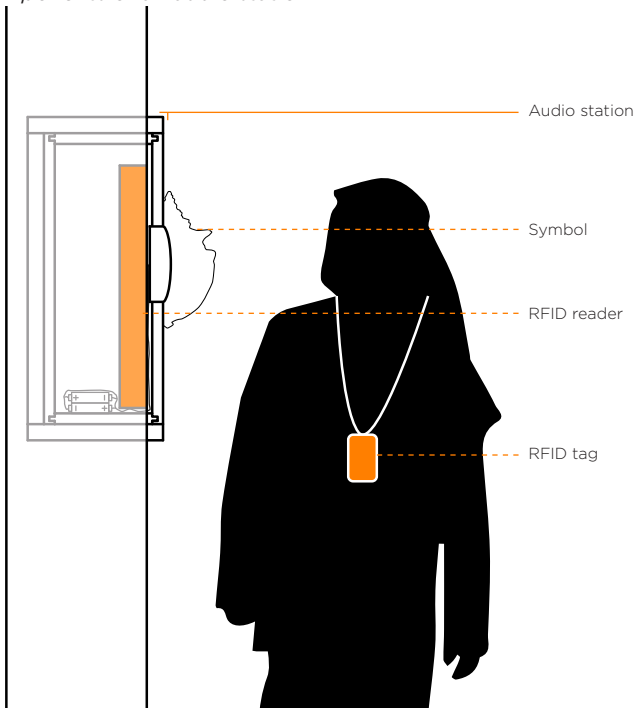
Worm’s eye view of watchtower

Audio-Narrative Trail

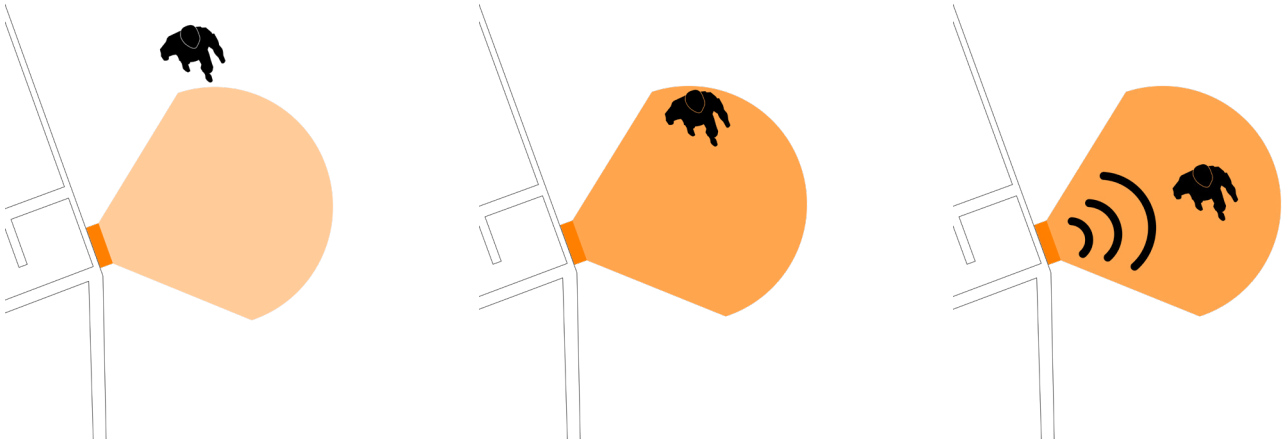
RFID, Physical Computing | July 2019

Audio-Narrative Trail was made as part of my work with the NTSI lab. This project was proposed as part of a series of museums planned for Jarizat Al Hamrah, a deserted historic area in the UAE that is currently under restoration. Oral histories are frequently overlooked in narrative technologies, so this concept integrates the stories of former inhabitants into the tour of the area, simulating a museum experience outdoors.

Components of an audio station

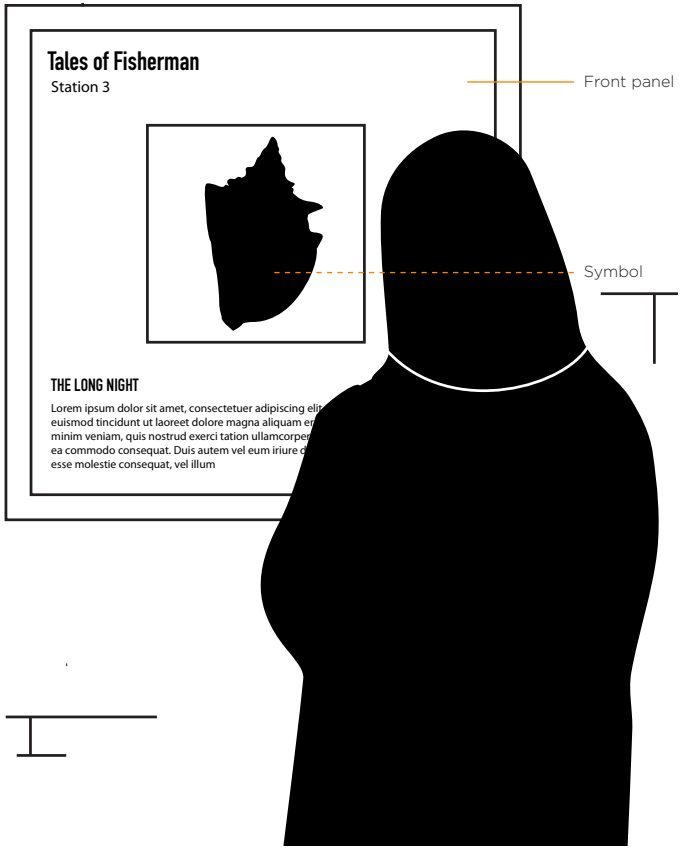


Order of interaction



The project proposes three narrative trails that allow visitors to navigate the notable landmarks of the area, each with 10-12 audio stations that also act as trail markers. The audio Stations create a complex, yet carefully curated, trail of stories to guide visitors. The audio stations are composed of a high frequency RFID reader, a speaker, and a microcontroller along with all electronics related to them enclosed in a box which is inserted into the walls. The box acts as a distinct indicator to these audio stations for visitors to approach, and each box will display a symbol representative of its trail. This system enables a contactless and immersive experience for visitors enabling them to enjoy the stories as they walk through the trail. RFID tags are used to trigger audio files which can be heard in Arabic or English.

Front view of an audio station



Morigami

Plywood | June 2018

Morigami was made in collaboration with Pranav Mehta and Jonathan Bonner. The project is a modular furniture system that attempts to solve the inflexibility of common household furniture.

Morigami, displayed

Morigami as a bed

Morigami as a lounge seating arrangement

Morigami as a seating arrangement, with a table

The completed tangram puzzle

The design of **Morigami** is inspired by a traditional chinese dissection puzzle game called a tangram, putting a modular twist on furniture. The pieces are made out of plywood, with support beams built inside to help carry heavy weights. The combination of hollow shapes and internal support beams provide for sturdy pieces. **Morigami** measures 150 x 150 x 45 cm. The height of 45 cms was chosen after testing to determine a comfortable enough height while keeping the pieces relatively light and mobile. The pieces also feature raised edges to provide a comfortable grip while rearranging the pieces. The colors were chosen to provide a sense of livelihood to any living room.