**Earthlens**

EarthLens was developed with a team of data scientists, software developers, and program managers at Microsoft’s //oneweek hackathon in 2016. It is an augmented reality application using Microsoft’s HoloLens to help scientists, students, and enthusiasts to immersively uncover and predict the health of our planet.

I led the software development of this project in Unity and collaborated with 2 other developers to deliver the MVP of the application. The scenario we prototyped was a table-top experience of Great Barrier Reef, where a user interactively experienced changes in the health of corals in past years. By creating machine learning models with 50 years of data for the reef’s health, data science interns created prediction equations for calcification and density of corals in the future. I worked on visual depiction of two primary scenes and their transitions, Hololens gestures, and integrating contributions from other developers, who developed the machine learning models for the coral scene.

To make the experience more immersive, I added spatial sound effects for gestures and surround sound commentary on how to use the application.

**Infinism tool**

A tool developed in processing to enable users to interactively create abstract art. Users can choose between four shapes (circle, square, rectangle, and line) and can change scale, stroke, rotate, and opacity parameters for these shapes by referring to its keyboard interface document. Space bar turns on/off the rendering of selected shape and enter clears the canvas. As the user hovers on various areas of the canvas, selected shape is rendered on the canvas infinitely.

**Infinism work in GIMP**

For Virtues, I generated about 55 images using Infinism tool. The goal was to create cover art for 12 virtues. Depending on the virtue, I would bring in a single or or multiple images and do post-processing using GIMP. During that, I would add effects or modify the images without changing the overall theme too much.

**Completed work, Modesty**

Modesty is a really strong virtue to have. I look up to my father to learn modesty and try to capture the simplicity yet elegance of modest people through this work.

**Virtues by Eulphean**

About this, I don't know why but the 12 cover art pieces representing each Virtue felt really incomplete without a corresponding music track. Thus, I decided to create a 12-track audio album called Virtues, which represents each virtue with an audio-visual experience.

**Magnificence, Courage, and Modesty**

Couple of days ago, I saw my brother sitting with the iPad and listening to these tracks on Soundcloud. Called for a perfect opportunity for a photoshoot.

**Pure Data Sampler**

After meeting Stephen and Tyler at a Startup weekend event in Seattle with a music vertical, we decided to hack a pureData patch to create stutter mic effects in 48 hours.

We created a pureData patch running on a laptop, which was hooked to a mic through a sound controller. I contributed by developing the midi component in Pd, which communicated with a TouchOsc XY midipad on a mobile device to get achieve portable interactivity. As soon as the user interacted with the midipad and spoke in the mic, the system got activated and recorded user’s voice sample. X-axis was the playback speed and Y-axis was the sample length. The vision was to create a mic for people doing standups or hosting events to create stutter effects like “Che-che-che-check it out..” Even though our team didn’t win a prize, we were the crowd’s favorite with a working prototype. We also got offered to create this as a plugin for a local startup’s music application.

Later, I enhanced the patch to include incremental recording of wav files. This made it a handy sampler to collect, save, and modify ambient sounds using just my laptop. To follow up, I imported the samples into Ableton and created experimental tracks using those samples.

Track1 from Pd-Ableton set

A track created by importing samples created by using pure data sampler into Ableton Live.

**Meditative Quantitative**

While reading Drawing on right side of the brain, I was dabbling with sketch pens, paint, honey, wax, and other mediums on canvas, paper, and fabric, I found it extremely liberating to express my tumultuous thoughts in a physical form. At this time, I collaborated with my friend and artist Austin Craig to create this quadtych composition. For this, Austin and I claimed two diagonal sides of the composition each, dismissed ourselves in separate rooms, and painted our meditative state of personalities for two days without looking at each other’s work. Given the uncertainty of this project in the beginning, sight of the finished piece was highly satisfactory. Can you guess which two sides I did?

**Zentangling Display**

While working on learning sketching and painting, I was also exploring my own style of personal expression through the art of zentangling, which is an easy-to-learn and fun way to create images using structured patterns.

Zentangling is normally focussed burst of energy strokes on certain areas of the canvas. These strokes are mostly with fine liners or sketch pens to express creativity through patterns.

**Phyos**

By learning tools like Ableton and Logic, I dove deep in sound design and started producing tracks under the identity eulphean on Soundcloud. Soon, I started Фos, a music project in association with my friend and artist Udit Mahajan, who was pursuing his MFA in Parsons at that time. Udit and I remotely collaborated on tracks like Chasing the Setting Sun and Paradigm Shift. Фos began with an effort to create experimental, hypnotic, ambient and nostalgic music with powerful melodies and strong bass & beat structure. With Udit’s experience on the drum machine and my ability to layer melodies, we paired up strongly to produce music. Now, we both create samples in our spare time and toss them at each other to enhance the sound of Фos. Chasing the Setting Sun track was well received amongst our friends and was appreciated in the music community.

**Coffee Bot**

This represents the documentation of my train of thought while architecting the navigation engine for the coffee bot. To develop this bot, I used the state machine software design pattern. Here I try to simplify the problem and strive for a generic solution.

All bot states - This identifies all the core states the bot can be in, while a user has to order coffee.

Core bot states - Out of all those states, I break the problem further to identify 3 core states.

A: List State - List a menu

B: Select State - Select a coffee

C: Pay State - Pay for the selection

Single state logic - Since coffee bot was driven by machine learning, various intents were trained using human data. Each intent was mapped to a specific state. For example, a list, menu, coffee all can be serviced by list state. Therefore, each state had a list of intents it could service and a business logic, which was executed using the Impact() in the case when intent did and did not meet the confidence level.

**Polls on a message**

This image documents the development experience for polling feature in Skype. Development in React by Facebook is highly componentized. By clearly laying out what components are required, development becomes faster and less painful.

1: The first component identified is a poll picker, which is used to pick the poll type (Approval, Yes/No/Maybe, etc) needed to be added to a message.

2: The second component identified is the actual poll buttons attached in a message visible in chat steam, which we call a poll node.

Once these initial components are developed, I show development process for custom polls. One of the most fun things I've tried to practice in Skype is, documenting my work. Documenting work clarifies doubts and even shows solutions, which don't strike while thinking regularly. Documentation is extremely powerful and adds great value to the artistic process and growth.