

AI-Generated Self-Portraits

Time: 2019

Material: programmed digital imaging

Size: 256px, 256px

reference_research_paper: "UGATIT:

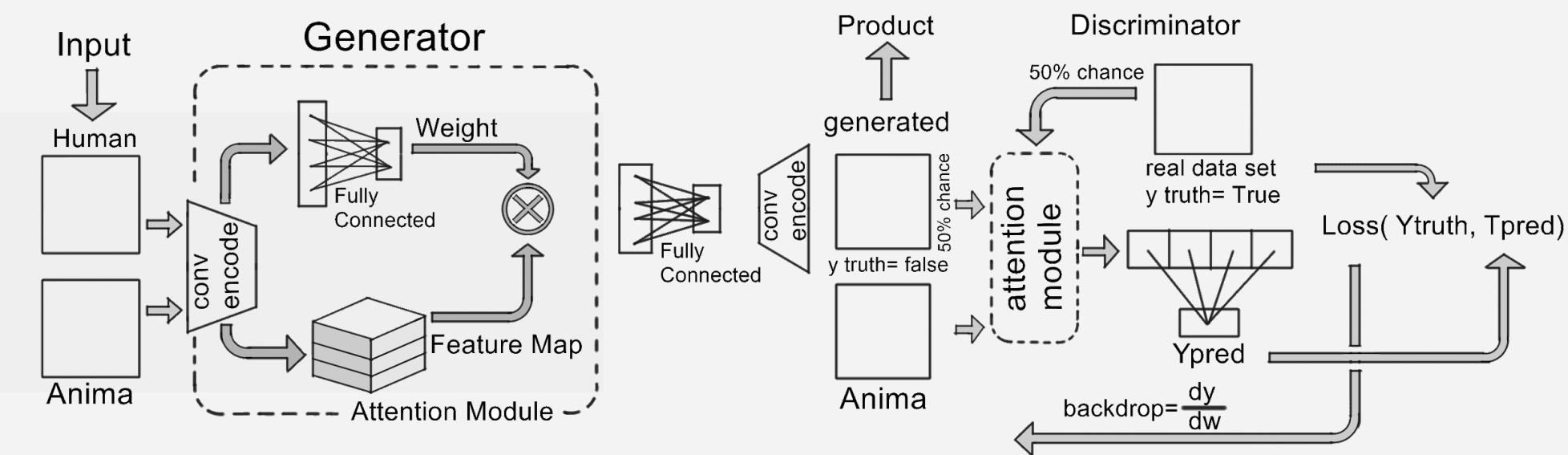
Unsupervised Generative Attentional Networks with Adaptive Layer-Instance Normalization for Image-to-Image Translation" (2019)

dataset_used:

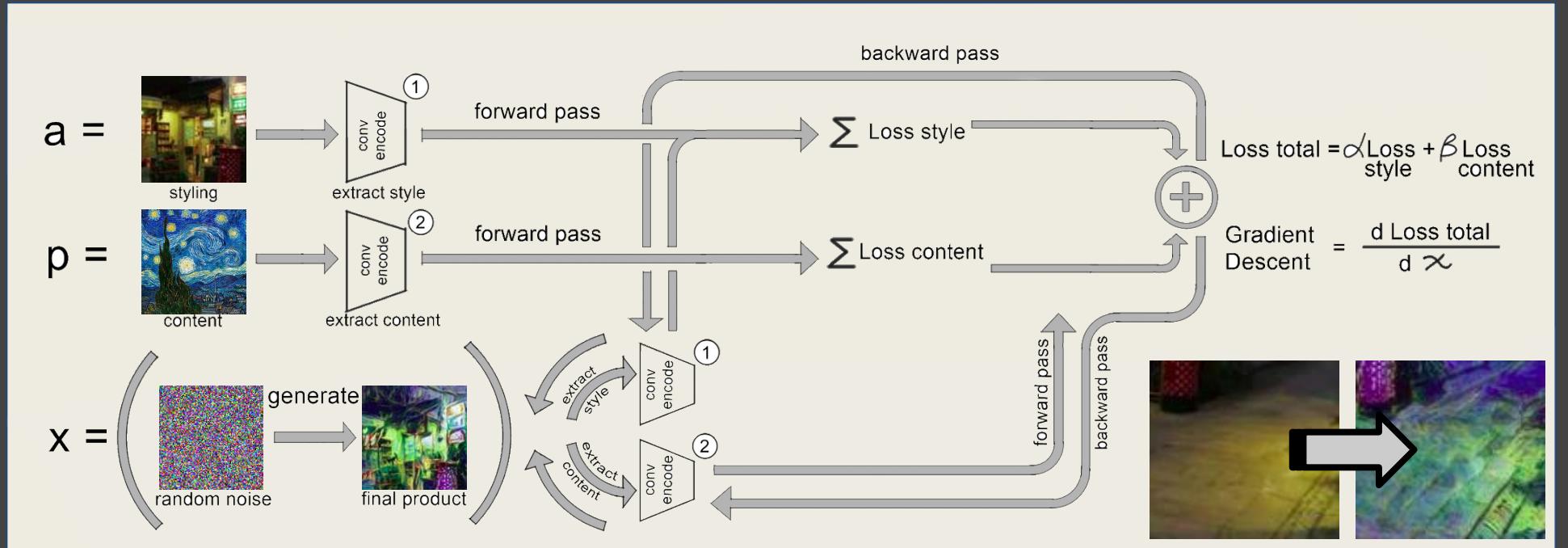
- animeface-character-dataset
- selfie-dataset

I was interested in how Artificial Intelligence perceive things. This artwork reflects literally how an AI sees me.

I trained and deployed my Neural Network according to methods in an unpublished paper in Computer Vision. The resulting images are generated by code. (the training process is shown on the network architecture diagrams)



network_architecture: Generative Adversarial Network (GAN)



network_architecture: Convolutional Neural Networks

AI as My Brush 1: Starry Town

Time: 2018-2019

Material: programmed digital imaging

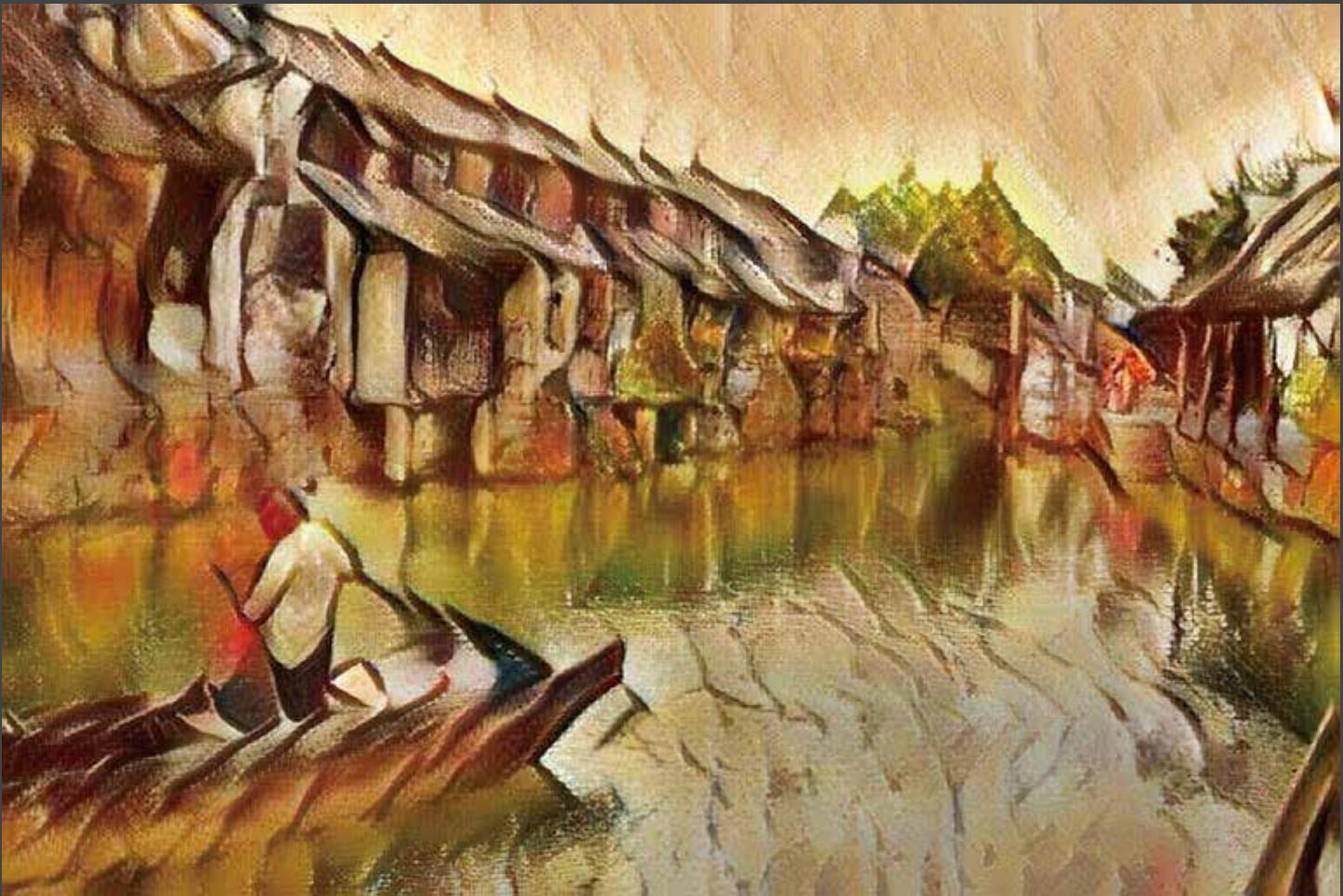
Size: 768px, 512px

reference_research_paper: Image Style Transfer Using Convolutional Neural Networks (CVPR 2016)

allusion_to: Vincent van Gogh: "Cafe Terrace at Night"

Walking in an old town under the sunset,
cafe shops lit up into the bustle,
only with the starry sky still.





This is an old town: People who live outside want to get in, while people who live inside want to get out.

- A Nostalgic Feeling of My Hometown from Visiting Suzhou Watertown



AI as My Brush 2: Water Township

Time: 2018-2019

Material: programmed digital imaging

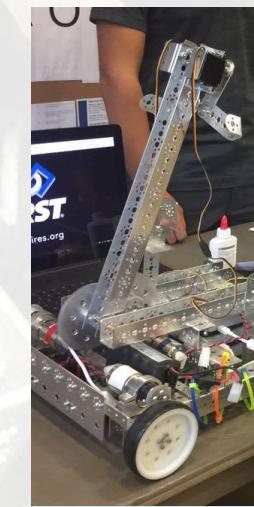
Size: 512px, 768px



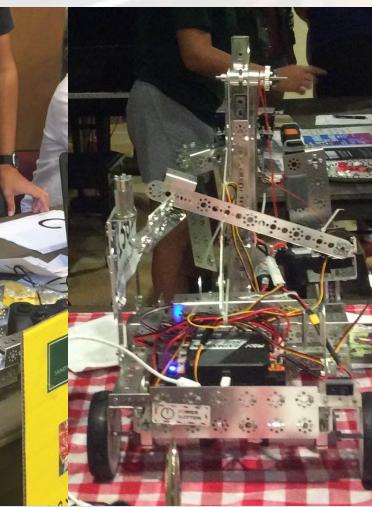


Judges' award:

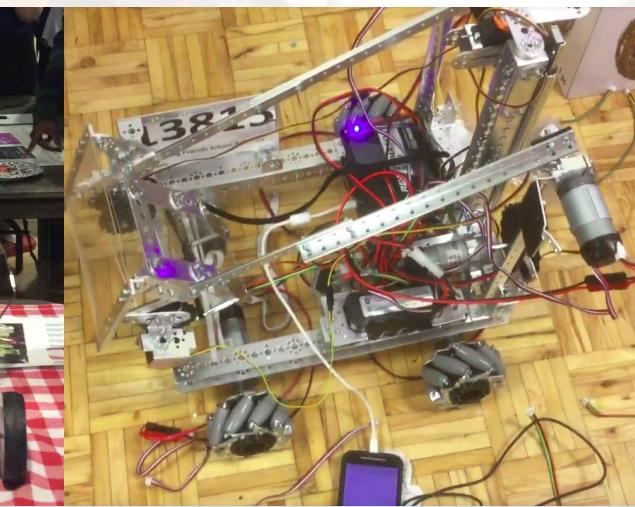
From 2018 FTC Robotics Competition for team's "unique efforts, performance or dynamics merit recognition."



Generation 1



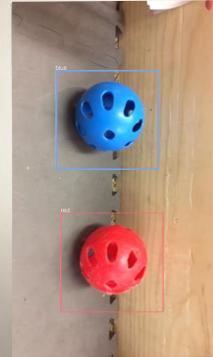
Generation 2



Generation 3

TensorFlowTest

LOAD PICTURES



Object Detection

BeestBot (Yes, I call it art)

Time: 2017-2019

Material: Steel, Motors, Servos, Rubber Bands, Sensors, acrylonitrile butadiene styrene (for 3D printing), etc...

team_project: 2~20 teammates in 3 years.

my_position: main hardware, software and electrical design

This autonomous robot is capable of picking and transporting "gold" and "silver" minerals; lifting itself onto a "rocket"; and landing to the "moon".

I worked 3 years on the robot's design. I deployed machine learning for object detection. I adjusted motors' gear-ratio for hooking and lifting itself from the ground.





BeestBot Logo & Team Uniform

Time: 2017-2019

Material: digital imaging, pre-shrunk cotton, poly/cotton blend (for t-shirt & hoodie)

team_project: working with 2~20 teammates in 3 years.

In my 10th grade, I built our school's first STEAM community from ground-up. It is fascinating to see our team spirits from all grades unite together on one project.



Aphotic Zone
Primary Producers

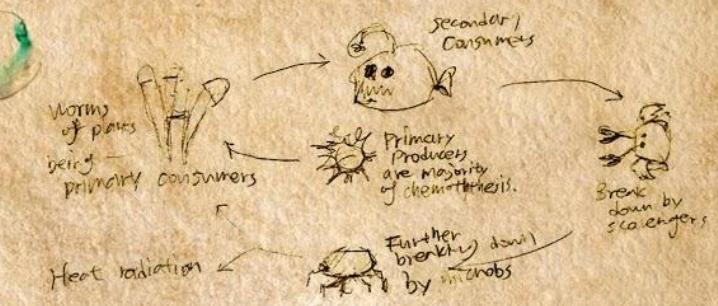
Seatanta - Adult



Progress of SP

the layout is loc → progress of SP

Carbon Cycle of Species

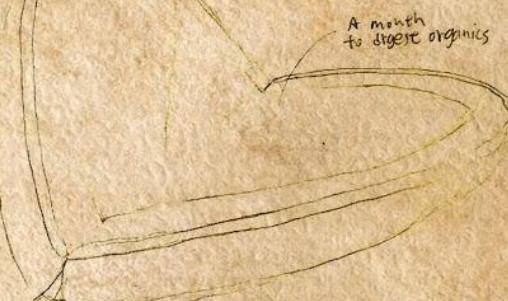


There was a few unsuccessful tries like this. I have some cool mechanics, but, you see -

For example, key stoke species can change their environment where they exist. There are various interactions between species:

- predation
- symbiosis
 - commensalism
 - parasitism
 - mutualism

This method of predation can be various, too, including physical attack and chemical attack.



There is no much progress I can show you in the journal about the semester project. In fact the progress can be slow by failures of my work because every week, I was thinking about new potential strategy of the species in the ecosystem.

Silicon

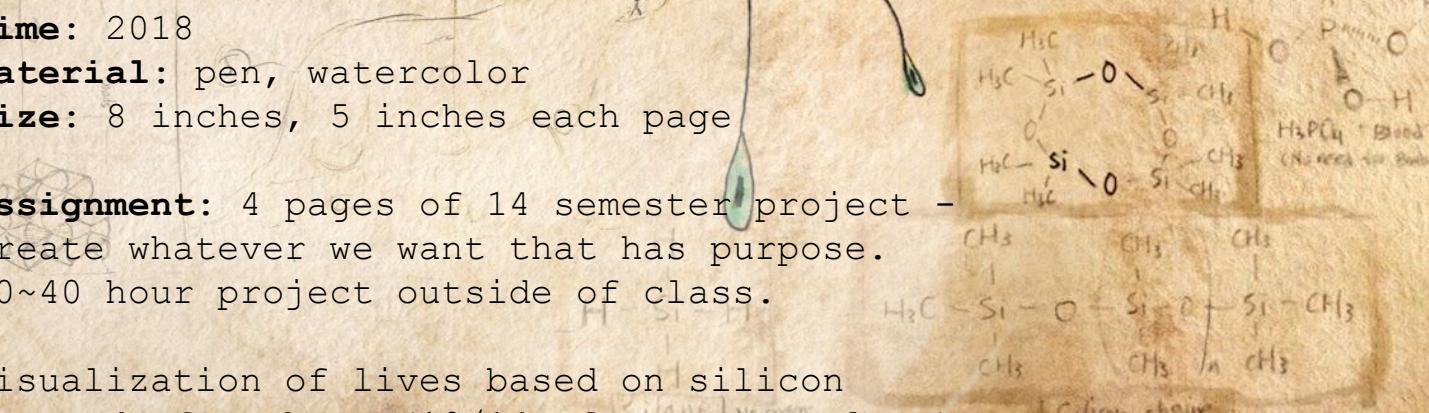
Time: 2018

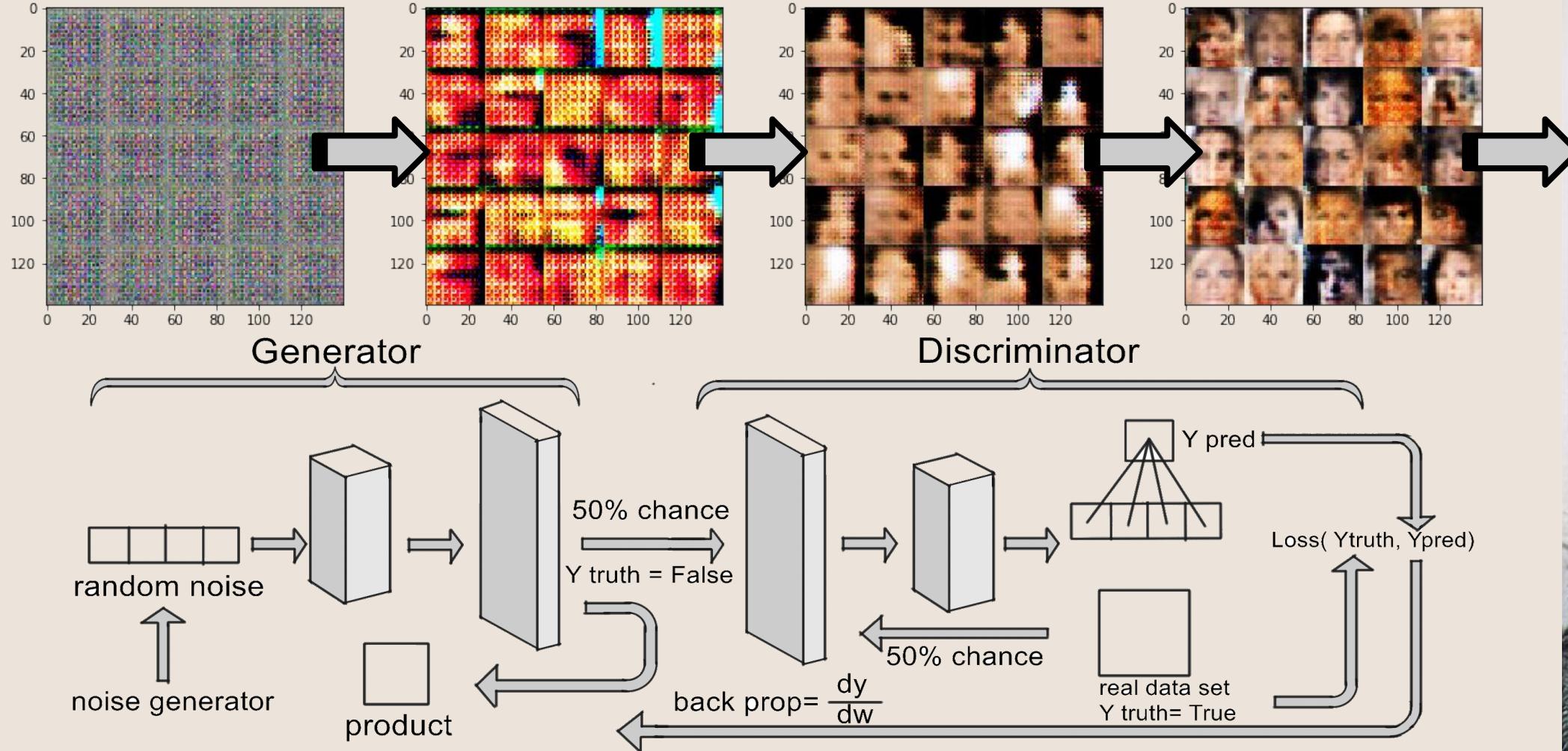
Material: pen, watercolor

Size: 8 inches, 5 inches each page

assignment: 4 pages of 14 semester project -
create whatever we want that has purpose.
20~40 hour project outside of class.

Visualization of lives based on silicon
instead of carbon. (10/14 of pages are lost)





Fake News

Time: 2019

Material: programmed digital imaging

Size: 1024px, 1024px

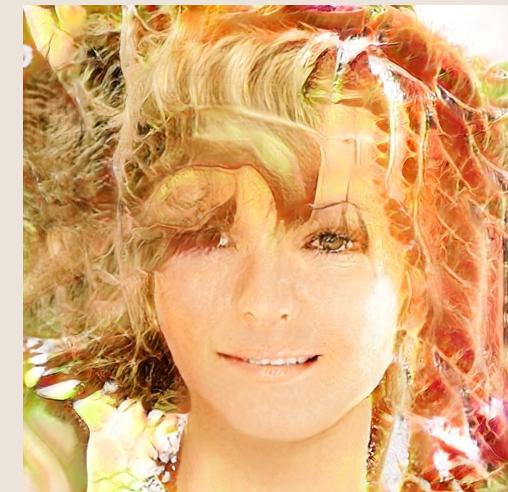
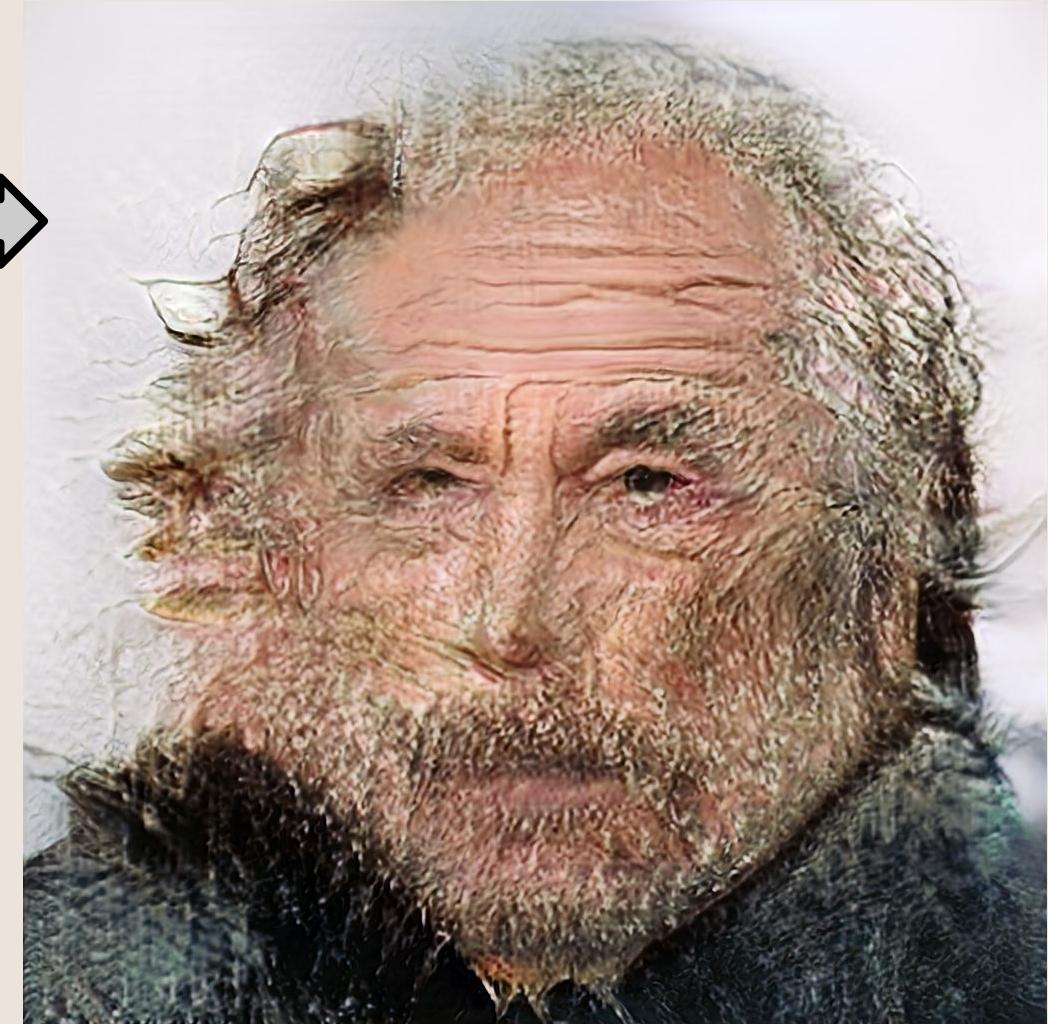
reference_research_paper:

"Generative Adversarial Networks"
(2016)

dataset_used: celebA

These paintings drawn with my AI algorithms was generated completely from random-noise inputs, which means that these people do not actually exist on earth.

I used this piece to demonstrates the power of AI and how the growing technology can create problems like "DeepFake crisis" in our society.





Shoe: A Poem

Size: 8.3 inches by 5.8 inches
assignment: journal entry of my choice

Walking in my shoes,
familiar, warm, and steady.
Walking in their shoes,
exotic, strange, and uncertain.

But thanks to you-all,
I will keep this
dirty, broken,
and wrinkled shoe,
with my small, little,
and meticulous care.



Line-only Drawings

Time: 2019
Material: pencil
Size: 29 inches by 23 inches

assignment: first-year Adv. Studio Art; line only; still life drawing using graphite; focusing on quality of light, shadow, and shapes make forms.

Species of Flowers

Time: 2017

Material: 100% nature, (not from concentration), 80+ wildflowers in Maryland

Collecting flowers in the spring was my past hobby to enjoy and study the nature. I identified and classified 80+ different species of flowers in Maryland. Now as I walk in the forest in the spring, my memories of the past flood out from my heart.





Hunger Is Not a Game

Time: 2018

Material: digital animation

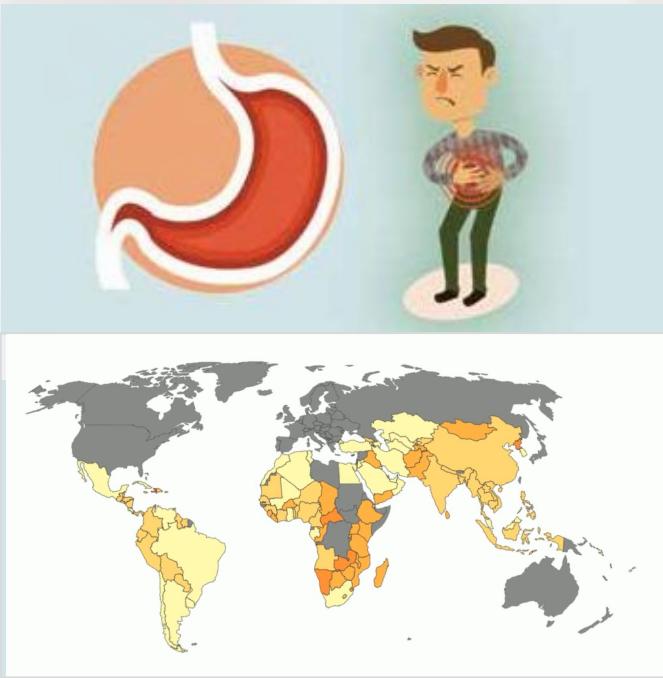
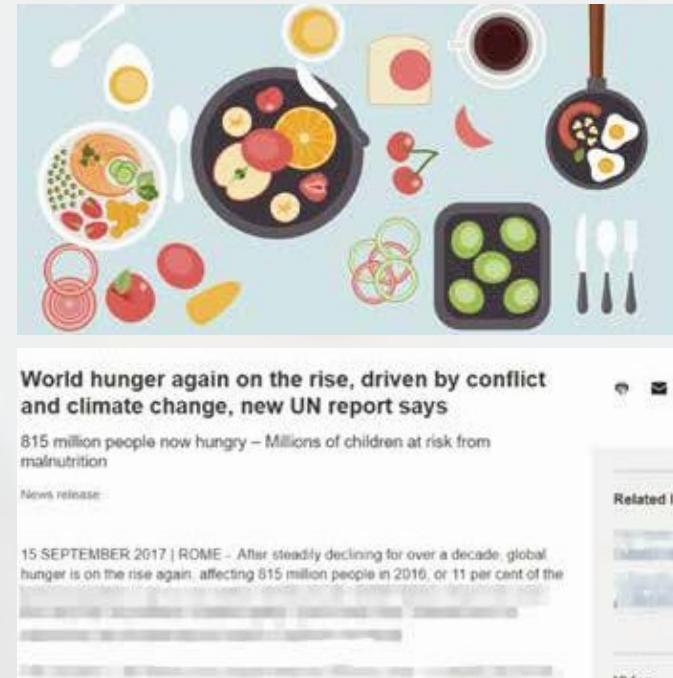
Size: 1 minute, 720px, 1280px

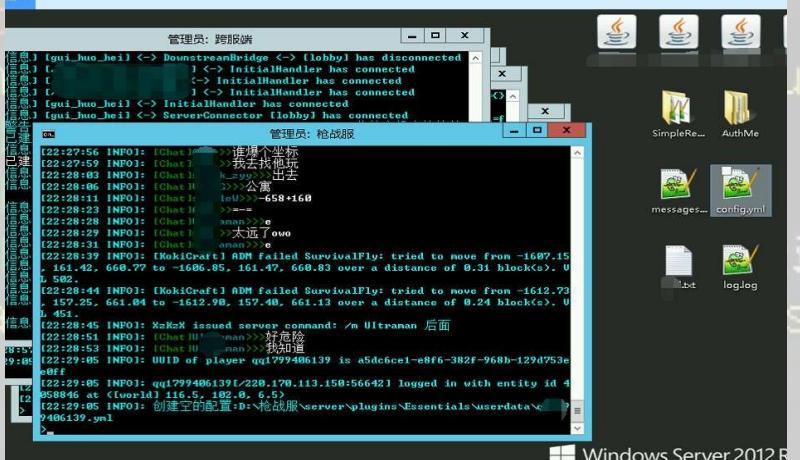
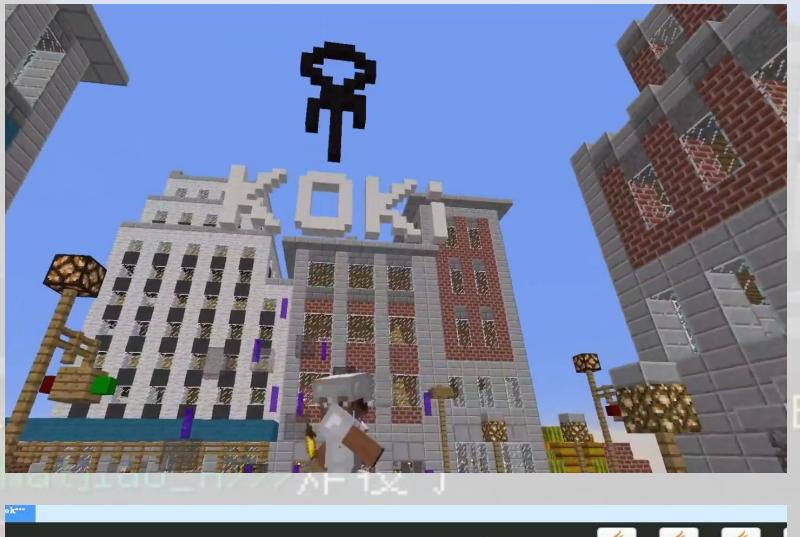
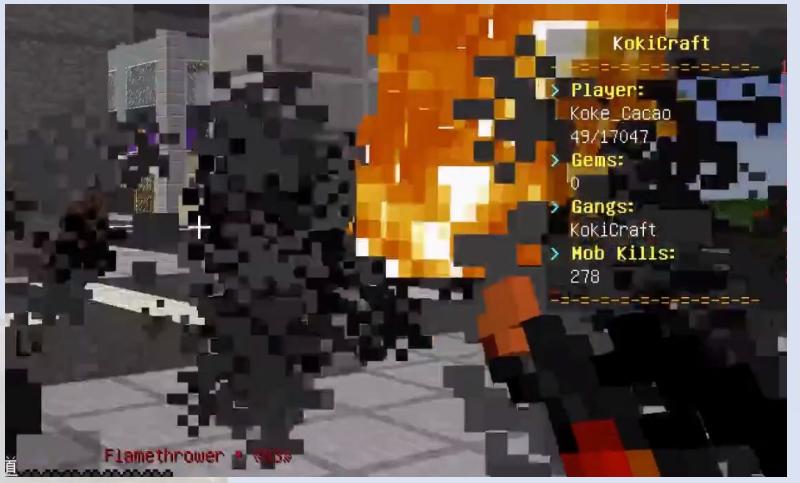
tools used: Adobe After Effects, Adobe Illustrator

team project: with 2 other people in Environmental Science class

my position: animation design, research, script design

I animated this Public Service Announcement about how the growing world population and unbalanced food distribution could potentially cause hunger in certain countries. Our team proposed two solutions: creating food banks and promoting women's education.





KokiCraft Game Server

(Game Design, Pixel Art, Interface Design)

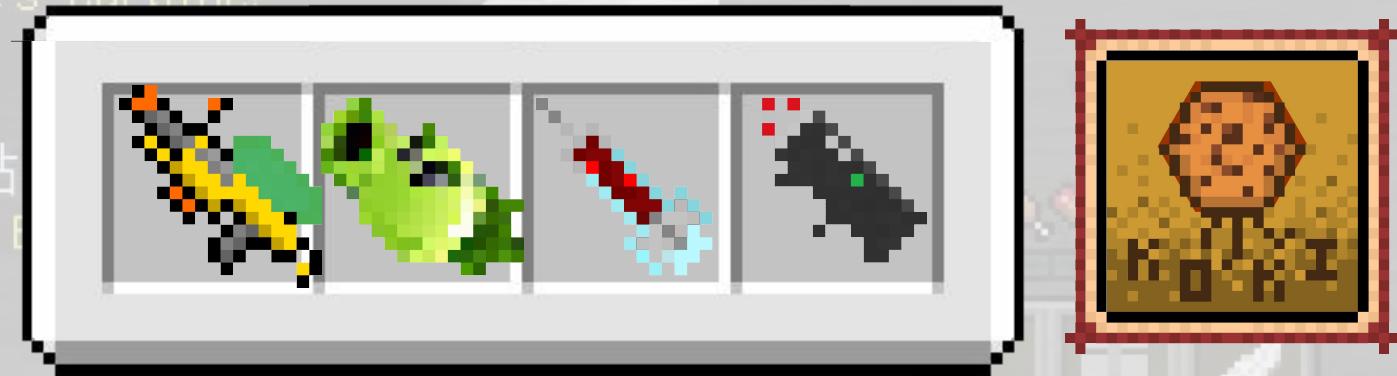
Time: 2014-2016

Material: programmed digital imaging, PhotoShop

team_project:

At 14, I created "KokiCraft", a game serve that transformed Minecraft into a Grand Theft Auto-esque game with more player involvement and elaborate storyline through programming.

Here are some examples of my Icon, User Interface, and Game Mechanic Design as well as server's backend.



Hanke Chen

How romantic it is to learn things together with my AI model on weekends — [2019/02/02]

Rockville, MD

Technical Website

Twitter

GitHub

Instagram

About Me **Academic/AI Research** **Robotics** **Art** **Miscellaneous** **Q**

Website Design

Time: 2018
Material: programmed digital imaging
tools-used: ruby, html, css, jekyll
link: <https://chenhanke.me>

This general web page coded by me showcases every aspect of myself from AI Research, Robotics, to Art and Game Designs.

Responsive UI Design: automatic resize on phones



Conceptions of AP Environmental Science

Time : 2017

Size: 10 inches by 17 inches

Material: watercolor on strathmore
500

assignment: creating a page of doodles that works from all 4 sides

The doodles in this drawing are from all materials in an year-long course of AP Environmental Science. I used it as a review for my upcoming AP test.

Brownie UI: A Personal Tech-Webpage

Time: 2017-now

Material: programmed digital imaging

link: <https://www.kokecacao.me>

This geek-style minimalistic design is an expression of my personal values and how I show them to my friends. The use of line, shape, hue, and saturation gives the viewer a sense of intimacy.

0x05 Global Deployment — Sounds big, but it means social-network

[Github] [Bilibili] [Instagram]
[Kaggle] [Twitter]
[Zhihu] [WeChat]
[Youtube] [Email]

👁| Computer Vision

Currently taking Udacity's Deep Learning for 2nd year.
Doing some Kaggle competitions. Studying CNN
...

(details shown)

⌚| Hamster
Artificial Intelligence
programmed on smartphone

</>| Codings
I can do: Java | Python |
Android | SQL | html | css
| Lua | Github | Tensorflow
| sklearn | OpenCV |
Linux(Kali, Ubuntu) |
Pytorch

🎮| Game Design
KokiCraft is my first game for game design. It

Koke Cacao

Wanting to know everything, but time is limited — [2018/07/18]



Other Languages: [简体中文]; [English]; [繁體中文]; [日本語]; (WARNING: English is the most up-to-date version.)

My other websites: [RoboticsClub]; [ArtClub]; [Blog]; [Website];

MyProperties: Quantum delay experiment's strange bug | Extremely Introvert, but talkative with people who share same interests with me | Love Science | A Nerd | Tech Person who love watching anime | Almost never play video games | Yan Text | Sublime Text is the world-best-looking text editor | Vim (still learning the useless Vim) | Pytorch is the best framework in ML | Using Ubuntu as desktop | Occam's razor is the fundamental theory of SCIENCE!

This MeaningOfLife.java file is where all my power came from:

```
private boolean stillAlive = true;  
private int lastSecond = 1928891298174;  
private void live(Energy e) {  
    while(stillAlive) {  
        if ((this.getDream != null) && (lastSecond > 0)) {  
            this.getDream().createArtificialIdiot();  
        }  
        lastSecond++;  
    }  
}
```



Class Logo Design

Time: 2016

Material: digital imaging

My design of the logo for my class includes the meaning of "growth", "love", and "peace". The class adopted my design onto our class t-shirt.





The Night

Time: 2017

Material: relief print with water-based block print ink

Size: 18 inches by 12 inches

assignment: After looking at of variety of relief prints (19 century German expressionist, mid-century modern Ukiyo-E and contemporary from around the world), to create your own relief print utilizing black on white shapes and white on black shapes within the same composition. (black on white and white on black)

Bitcoin Rating Visualization

Time: 2019

Material: programmed digital imaging

tools used: gephi

dataset used: Bitcoin OTC trust
weighted signed network

Because bitcoin system is anomalous, there should be a way to track the reputation of each user in the system. Here, I present data visualization of trustworthiness by projecting high dimensional data to 2D graph.

Each color represent a distinct group of people that trust each other. The "authority" in the groups are labeled as bigger circle.

Aren't we all connected in some ways?

Algorithm: ForceAtlas 2

Algorithm: Yifan
Hu Proportional

