

Immersive Analytics

CMPM 290A, F2018

Prof. Angus Forbes (instructor)

angus@ucsc.edu

creativecoding.soe.ucsc.edu/courses/cmpm290A_ia

Today class

- CruzXR meetups (<https://www.meetup.com/CruzXR/events/>)
- Describe VR experiences in small groups
- Discuss Putnam and Kuchera-Morin
- More details about Project 1
- Homework for Thursday

VR experience

Write a short response describing the experience, the interactions, the visuals, the sounds.

What did you like or not like?

What aspects felt realistic, interesting, immersive, engaging, off-putting, ...?

Does VR provide you with something that can not be replicated in more common media formats?

What kinds of *data* were presented in the VR experience?

New York Times' Voyages Issue

<https://www.nytimes.com/interactive/2018/09/21/magazine/voyages-travel-sounds-from-the-world.html>



Kuchera-Morin, Performing in Quantum Space

- "Using the senses" is important to the learning process; this sensing has been lost, due to its abstraction and complexity
- Computation isn't enough, needs to be sensible, comprehensible
- This sensing experience needs to have "no outside interference"
- "literally perform"?
- What are the "techniques of the artistic process," and how do they allow for "control"? What is the role of the artist?
- Two types of data: experimental measurements and abstract models

Flowers

- 0.1 poly x
- 0.1 poly y
- 0.1 poly z
- 0.25 poly alpha
- 0.1 poly beta
- 0.1 poly gamma
- 0.25 poly radius
- 1.1 poly rigidity
- 1.1 poly smooth
- 0.5 poly vel
- 0.525 det
- 0.15 contour
- 0.15 thick
- 0.1 zoom
- 0.2 pitch 1
- 0.1 n
- 0.1 l
- 0.15 J
- 0.15 wf 1
- 0.15 r
- 0.15 w
- 0.1 n
- 0.1 l
- 0.15 J
- 0.15 wf 2
- 0.15 r
- 0.15 w
- 0.1 n
- 0.1 l
- 0.15 J
- 0.15 wf 3
- 0.15 r
- 0.15 w



Putnam, Immersed in Unfolding Complex Systems

- VR as: "a common meeting ground where diverse researchers can share insights and pursue similar fundamental questions about symmetry, beauty, pattern formation, and emergence."
- VR as: "a holistic rethinking of the fundamental aspects of our creative medium: computation, data, process, perception, interaction, immersion, and evaluation."
- Beauty = truth, and elegance = unfolding intriguing equations ... to discover symmetry or the breaking of symmetry?
- *Epistemological* experiment is a new form of art...

Putnam, Immersed in Unfolding Complex Systems

- VR lets you “compose systems that generate complex natural patterns with precision and autonomy”, which guides our search for “significant patterns in the data.”
- Focus on fields and agents
- Filtering as *composition* = organization of materials; Data visualization as filtering...
- “what are we looking for in the data or system?” To begin answering this question, we can say that we are looking for the interesting patterns that reveal essential aspects of the system as it unfolds.

Giorgia Lupi & Stefanie Posavec, "Dear Data"

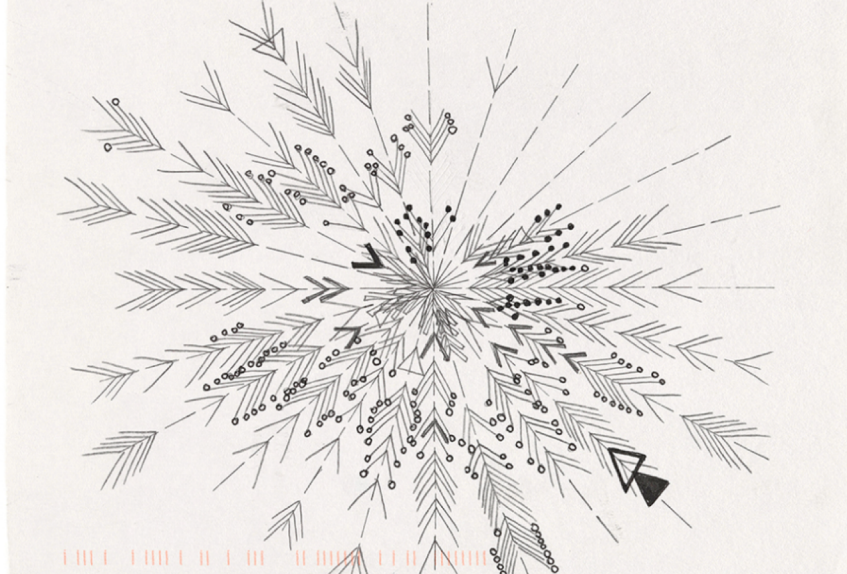
<http://www.dear-data.com/theproject>

"Each week, and for a year, we collected and measured a particular type of data about our lives, used this data to make a drawing on a postcard-sized sheet of paper, and then dropped the postcard in an English "postbox" (Stefanie) or an American "mailbox" (Giorgia)!"

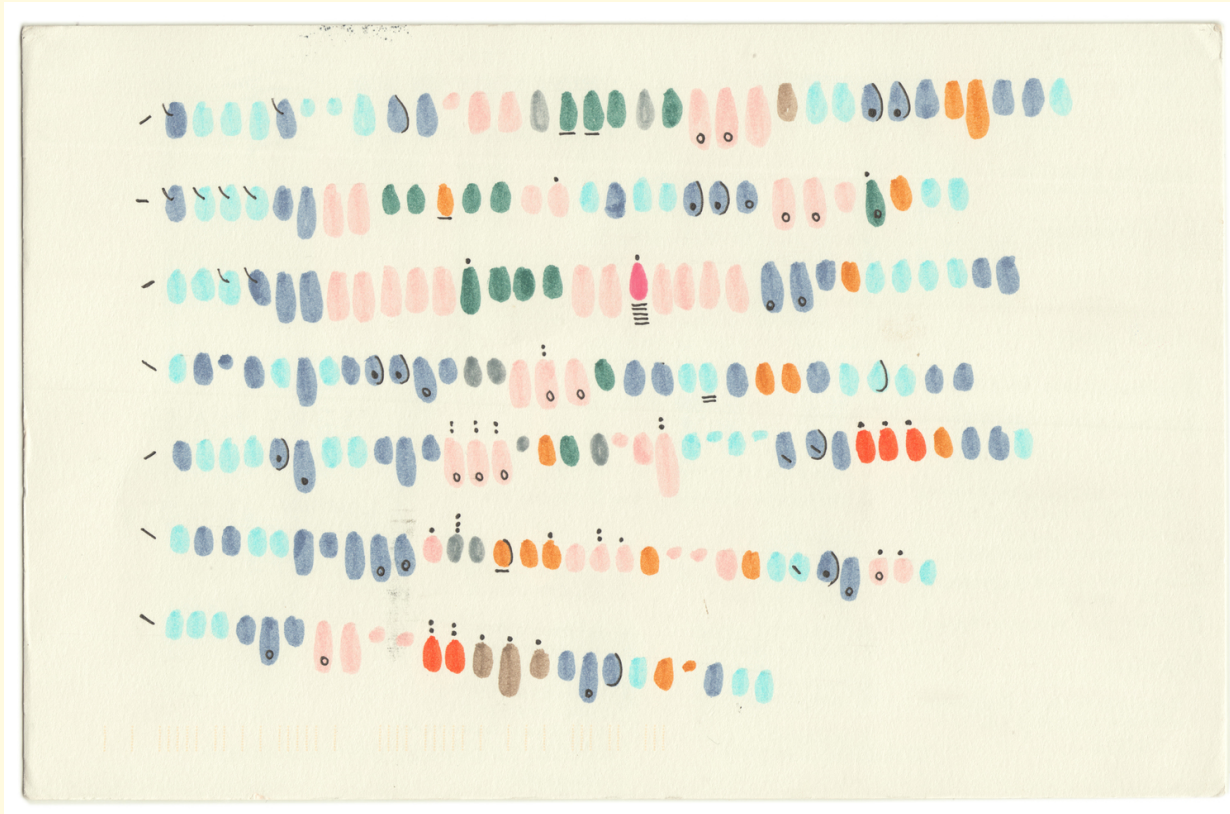
GIORGIA week one



a week of Clocks Stefanie



Lupi, "Dear Data"



Lupi, "Dear Data"

66 DEAR DATA
WEEK 04: MIRROR MIRROR ON THE WALL

FROM,
NEW YORK NY 100
07 OCT 2015
BROOKLYN
-NY- USA



HOW TO READ it:

Each "drop" represents a single "look" at myself reflected.
Each horizontal line is a day of the week. "Looks" are ordered chronologically. The inclination of the line represents whether that day is above or below the average in n. of "looks"



- COLOR = where I saw myself
- Mirror of my Bedroom
 - Mirror of my Bathroom
 - Window / shop-window
 - Mirror of hairdresser while having a hair-cut
 - Mirror of cafe / restaurant's Bathroom
 - Mirror of the Bathroom at work.
 - Screen of iPhone or Mac
 - Others
 - Camera of my iPhone while doing a selfie.

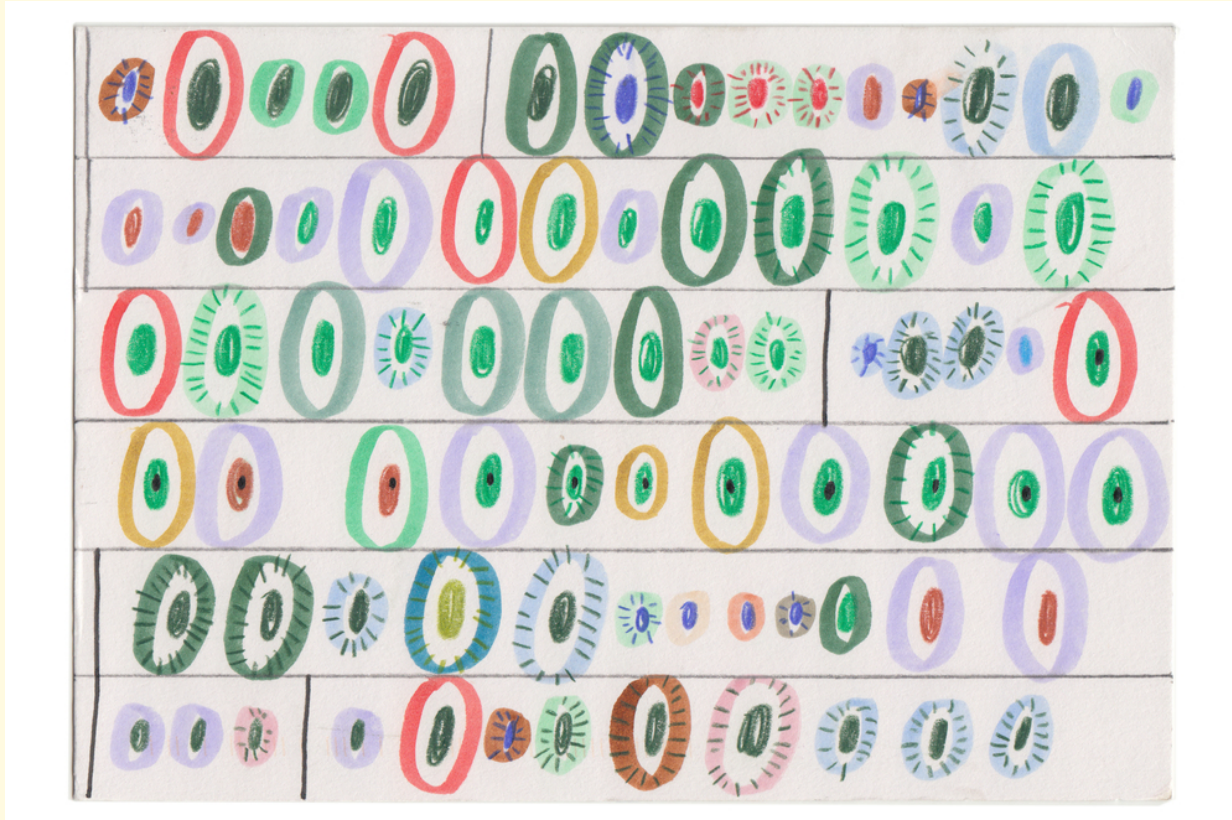
- LENGTH indicates the intention:
- tried to avoid not to report
 - seen myself while not thinking of it
 - purposely checking how I looked like

- ATTRIBUTES:
- thought I should cut my hair
 - thought I should change dress
 - thought I was cool!
 - didn't see myself

- seen myself with others
- spent some time looking
- did something (like change dress or adjust my hair) but didn't see myself

SEND TO:
STEFANIE POSAVEC
LONDON
[UK]
ENGLAND

Posavec, 2015 "Dear Data"



Posavec, "Dear Data"

DEAR DATA - WEEK 42

A WEEK OF LAUGHTER FOR A CARD ABOUT LAUGHTER I AM SAD ABOUT HOW THIS CARD TURNED OUT

ABOUT THE DATA: I TRIED TO CAPTURE MY LAUGHS WHICH WAS REALLY HARD + GOT IN THE WAY OF ENJOYING LIFE, HENCE THE DATA VOIDS ☹️

HOW TO READ IT:
 IN CHRONO ORDER
 START → [Diagram: A grid with colored dots representing laughs, with arrows indicating reading from left to right and top to bottom.]
 END ←

WHAT I WAS LAUGHING ABOUT
 EACH [Diagram: A circle with a dot inside] REPRESENTS A LAUGH, OR MOMENT OF LAUGHTER.
 WHO I WAS WITH

ALL LAUGHS ARE DRAWN IN CHRONOLOGICAL ORDER FROM L-R AS IF YOU'D READ A BOOK.

MARKERS INDICATE END OF ONE DAY + BEGINNING OF OTHER. IF MARKER IS IN "PEN", IT MEANS I HAD A DATA VOID DUE TO THE FOLLOWING:
 DRINKING W FRIENDS, MY BDAY!! , MY B-DAY DINNER

SIZE OF LAUGH:
 [Diagram: Three circles of increasing size] TO MYSELF, REGULAR, LARGEST HEARTFELT!
 A DOT MEANS YOU KNOW LAUGHING WITH PEOPLE (GENERALLY IN FUNNY)

I WAS LAUGHING WITH:
 MYSELF
 MY HUSBAND
 FRIEND
 STUDIO MATES
 GROUP OF FRIENDS
 CONTACT

I WAS LAUGHING ABOUT:
 BEING IN A GOOD MOOD, GENERAL TV SHOW
 FRIENDS QUIZ SUCCESS! (WE GOT 2ND)
 STRANGERS BEHAVIOUR
 MYSELF - BEING TICKLED! (TRYING TO MESS W/ MY DATA ☹️)
 DEAR DATA
 HUSBAND
 ANIMAL
 PARENT
 SCHADENFREUDE
 PHONE AUTO DIALLECT - YOU!

FROM: S POSAVEC
 Mail Centre 03-07-2015 14014000
 Get stamps at 14014000
 UK/dogawareness

TO: GIORGIA LUPI
 BROOKLYN, NY 11249
 USA

AIRMAIL!

Homework for Thursday

Read through 3 articles from 2014 IEEE VIS International Workshop on 3DVis

- "The (possible) utility of stereoscopic 3D displays for information visualization: The good, the bad, and the ugly", John P. McIntire and Kristen K. Liggett
- "2D and 3D presentation of spatial data: A systematic review", Steve Dübel, Martin Röhlig, Heidrun Schumann, and Matthias Trapp
- "3D InfoVis is here to stay: Deal with it", Richard Brath

Project Packet 1

Part 1-

Summarize scholarly articles

- Choose your articles by Oct 11th (this Thursday)

Project Packet 1

Part 2-

Create a VR data visualization

Questions?

- A-Frame vs. Three.js vs. Unity?
- Unity lab?
- MR headsets on Mac?
- Access to DSC, to CM user testing lab?