Abstract

For more than 30 years the Ars Electronica festival has exhibited the cutting edge of media art and served as an indicator of technology's dramatic evolution. This project will help illustrate and contextualize the progression of media art over this time through the lens of the Ars Electronica Festival. The viewers will be able to see some of the larger structures and trends driving the evolution of media art, such as the growth and decay of specific topic areas, through an interactive, augmented-reality (AR) exhibition experience.

Background

This project will draw on knowledge from previous work, exemplified by these noteworthy projects:
- Data Visualization in topic modeling
    - https://www.machinelearningplus.com/nlp/topic-modeling-visualization-how-to-present-results-lda-models/
    - https://www.machinelearningplus.com/nlp/topic-modeling-gensim-python/
- Data Visualization with augmented reality
    - https://www.youtube.com/watch?v=rj-m2SItDl4
    - https://www.zdnet.com/article/data-visualization-via-vr-and-ar-how-well-interact-with-tomorrows-data/

Motivation

Data visualization can be a tool that illuminates hidden structures and meaning behind a collection data. While the Ars Electronica online catalog is a thorough and excellent resource, exploration through this website can make it hard to understand how all these projects have continued to influence each other over the years just by clicking through each project and reading all the bios separately. The AR interface will also allow the users to navigate and view the higher level meta-structures of the Ars Electronica dataset in a way that is immersive and linked to their physical movement within the space. In this way, AR datavisualization can be a tool to bridge the gap that exists between an individual in the physical world and information accessible only in a virtual world.

Objective

My project will transform the dataset of the Ars Electronica Archive into a data visualization tool where users will be able to interact with the data and see the trends that have occurred over the years of the festival's existence. Specifically, I will be using Processing to create the

visualization, Python to scrape the data from the Ars Electronica website, and libraries (such as the NyARToolKit-for-processing) to render the Processing graphics in an AR environment.

The user will be able to see a timeline (from 1987-Present) of all the Ars Electronica submissions and the categories they were submitted to. This will allow the user to still be able to explore the archive in a similar way, but also give more context by showing metadata and statistics for each category per year. The user will then be able to see trends through the projects by having a visualization of how the projects connect through the types of words contained in the project descriptions. For example, if the user typed in "AI," the visualization will be able to show the waxing and waning prevalence of AI in media art through time which in turn could lend insights into aspects of the topic such as the various "AI winters" that have occured.

Given the Open Source software tools used to develop the work, this project will be accessible and recreatable to other interested groups no matter where they are located or what kind of space they have access to. I hope this would also allow users to further develop the project and create visualizations based off the experience I created--fostering new questions to be asked and new insights to be discovered.

Figure 1: An empty room with a blank timeline. Markers will be places so when users use there devices they can visualize the AR experience.
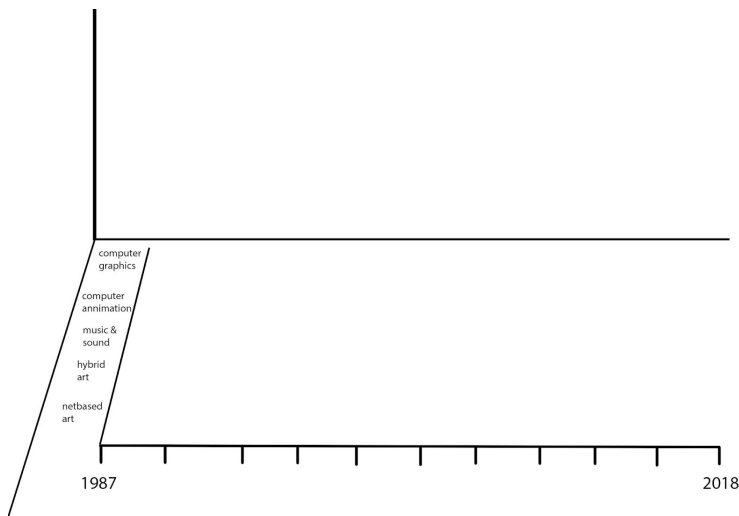
Figure 2: When the user uses their device they will see what's being represented in this timeline and the trend of the data they wish to see.

computer
graphics

computer
annimation

music &
sound

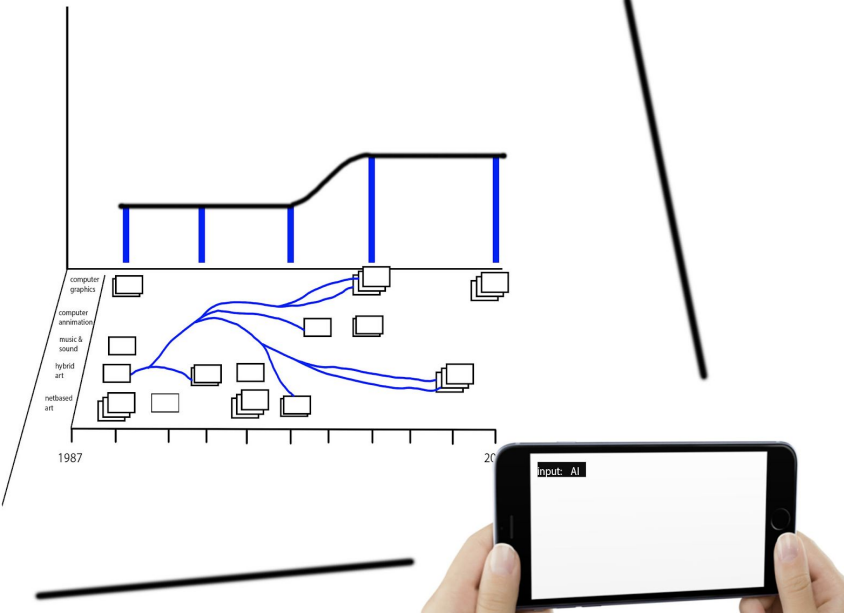hybrid
art

netbased
art

1987

input: AI

Figure 3: Same as figure 2. What will be seen through the device onto the timeline.

input: AI

computer
graphics

computer
annimation

music &
sound

hybrid
art

netbased
art

1987

2018