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Concept Statement

This thesis project is looking at how the algorithm-controlled system is affecting the everyday lives and what are the current public reactions responding to this problem. It is a critical design piece to be exhibited in a public space that reflects the dynamics inside YouTube, a video-sharing platform.

In the world of 2019, the word “algorithm” does not just mean the list of rules a computer follows in order to solve a problem. Google ranking systems sort through the hundreds of billions of web pages to give the user useful and relevant results.¹ Amazon Alexa, a smart device built based on natural language processing, is using the algorithm to understand and talk to people. AlphaGo, Google DeepMind’s Go playing AI, defeated one of the best human players in the world with deep neural networks and tree search.² More processes are being automated and human decisions are increasingly made together by algorithmic decision making. Thanks to the human-centered design, all the services on the Internet and digital products are well developed to respond to dynamic user inputs in the most convenient way. We do not need to understand any of the algorithms in our everyday life.

However, this also means that we are losing track of the comprehensive logic behind the system we interact with. On 2016, Share Lab published their investigation of how our behavior, actions, and the information is collected, stored, analyzed and finally transformed into the products within Facebook.³ As they stated, algorithms are deciding which information will appear in our infosphere in every moment. With 1.6 billion active users in 2015 Facebook is

¹ Google Search. Accessed February 15, 2019. <https://www.google.com/search/howsearchworks/algorithms/>.

² Agarwal, Aman, and Aman Agarwal. "Explained Simply: How an AI Program Mastered the Ancient Game of Go." FreeCodeCamp.org. March 10, 2018. Accessed February 15, 2019. <https://medium.freecodecamp.org/explained-simply-how-an-ai-program-mastered-the-ancient-game-of-go-62b8940a9080>.

³ Admin. "The Human Fabric of the Facebook Pyramid." SHARE LAB. Accessed February 15, 2019. <https://labs.rs/en/category/facebook-research/>.

heading towards their mission to connect every person on this planet. It also revealed the fact that every of over 1 billion Facebook users or digital workers work averagely 20 minutes per day on liking, commenting, and scrolling through status updates. This equals to approximate 300,000,000 working hours of free digital labor per day.

At the same year, Hang from MFADT Parsons worked on a project named Data Selfie,⁴ an analyzed log of personal Facebook data. It is a Chrome browser extension that can be used for self-tracking when the user interacts, i.e. click, type scroll, dwell within Facebook. It successfully addresses the question of what is the digital profile that we unconsciously create. The designer's personal profile was presented at the exhibition, as a time-based data visualization.

This thesis project aims to work in the same direction, with the focus on the impact and connection from the digital experience to the analog world. Yale University psychologists show that people judged others to be less generous and caring if they were seen holding an iced coffee.⁵ The idea that our physical selves can shape our psychological selves, known as embodied cognition, has been a popular subject in recent years. It would like to evoke a stronger public reaction on the basis of our physical body interacting with the world fundamentally will connect to our thinking.

Two exercises were conducted when I continue developing the concept: the story of autoplay and the evolution of YouTube. Autoplay is a setting exposed on the YouTube video page. By turning the setting on, YouTube will automatically play another related video based on the user's viewing history. My journey of traversing about 48 videos started with "Drawing with Procreate on iPhone" and ended with "Apple Music - Florida Georgia Line + Memoji". A nodejs npm module was being used to pull the meta information of all 48 videos for further analysis. There were multiple genres involved like "Howto & Style", "Science & Technology" and "Entertainment". The average length of the video is about 6 minutes. All videos have more than 10,000 views. There were more than half hours getting stuck with glass replacement videos,

⁴ "Data Selfie." Data Selfie. Accessed February 15, 2019. <https://dataselfie.it/#/>.

⁵ Williams, L. E., and J. A. Bargh. "Experiencing Physical Warmth Promotes Interpersonal Warmth." *Science* 322, no. 5901 (2008): 606-07. doi:10.1126/science.1162548.

which is obviously based on one of the research I did for another project mainly about replacing phone screens.

The second exercise was contributed by more participants. Users were asked to go over the design of YouTube web version homepages starting from the year 2005. All screens were collected from web.archive.org. Most participants were able to point out the interface changes and aesthetic improvements. Nevertheless, only a few users noticed that Youtube has changed its design intention from encouraging a single user to upload videos, then developing a community for user-generated videos, to a platform for monetizing the video. On 2010, the “Recommended for you” section started to be prioritized. On 2011, the advertisement section takes the most important position out of all features. On below the advertisement, it is the trending videos with about 1 million views. The number of views is the most important factors to evaluate a YouTube video starting from the year of 2008.

The number of YouTube users had reached 1.35 billion in 2016. This number may climb to 1.86 billion in 2021.⁶ 81 percent of global Internet users have visited YouTube in the recent month, and 31 percent of YouTube users access it more than once per day.⁷ In the past ten years, the categories of content being generated by its users have been extended to video blogs, gaming videos, instructional videos, and educational videos. Another statistics that worth being mentioned is the advertising revenue. In 2017, Google’s share of total U.S. digital advertising revenues amounted to 38.6 percent, as compared with 19.9 percent share from Facebook. Some of the top paying AdSense niches are Finance, Internet Marketing, Technology, Web Hosting, Internet & Computers.

It is not difficult to draw a conclusion that the recommendation algorithms and the advertising algorithms are the two most important categories within the walls of YouTube. In conjugation with other product areas across Google, YouTube uses deep learning as its latest general-purpose solution for nearly all learning problems. YouTube’s models learn approximately one billion parameters and are trained on hundreds of billions of examples. YouTube heavily personalize recommendations based on a user’s Watch History, Search

⁶ “Number of YouTube Users Worldwide from 2016 to 2021 (in Billions)”. Accessed November 10, 2018. <https://www-statista-com.libproxy.newschool.edu/statistics/805656/number-youtube-viewers-worldwide/>.

⁷ “YouTube: Statistics & Data”. Accessed November 10, 2018. <https://www-statista-com.libproxy.newschool.edu/topics/2019/youtube/>.

History, and Demographic Information. The goal of YouTube's promotional algorithm is to promote videos to lead to longer viewer sessions.⁸ YouTube encourages publishers to make their advertising slots available within the programmatic system for advertisers to bid on. The advertiser buys the type of audience they want to reach but does not necessarily know which content they are viewing. Google controls what data they use to personalize ads to the viewer, based on age, gender, an inferred interest, or a previous interaction with an advertiser. In this way, longer viewer sessions are compiled to more monetized contents.

The project will be presented combining a physical visualization with a receipt printer to generate the individual components that construct the visualization. When the visitor walks into the space, he or she will see an unfinished visualization and a receipt printer. The visitor can connect to the receipt printer via Raspberry Pi. The Pi will have a local web server running, help the visitor to connect to his or her own Google account, and guide the visitor to go through a few Google settings. These settings not only enable the receipt printer to generate a digital profile for the visitor but also can remind the visitor of the existence of the settings. A receipt is a light-weight everyday object that is often ignored and thrown away. A receipt can also be carefully kept as proof of legal action and financial transactions. By design, the receipt in this project will have two parts, one for the visitor to take away as a personal copy, and the other to be reused as part of the visualization. The information to be included in the digital profile are the cost of YouTube services, the digital labor from the visitor by liking, disliking, commenting, and subscribing, and the advertisement personalization settings.

The project intends to engage the visitor by the physical touch and physical space linking to a digital experience. The guided connection and the visualization set up a context and overview of the project, and this digital platform that we all have daily interactions with. It leaves the question to the visitor to think about their positions when facing the impact that comes from a virtual world. It is not just about how the next generations are being affected. It is about our own time and effort being spent and the risk is still unknown. Currently, the biggest questions are what would drive the visitor to participate in the interactive installation, and how well do the participants perceive the correlation between different parts of the information.

⁸ Gielen, Matt. "Reverse Engineering The YouTube Algorithm." Tubefilter. February 16, 2017. Accessed November 10, 2018. <https://www.tubefilter.com/2017/02/16/youtube-algorithm-reverse-engineering-part-ii/>.

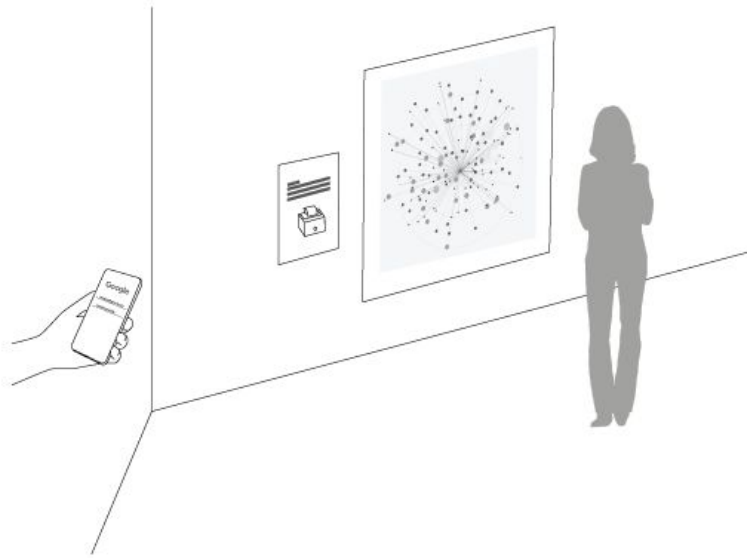


Figure 1 Exhibition setup