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Thesis Studio 1

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### Milestone Paper – Testing

This project is looking at the impact of algorithms to its direct users in the daily circumstance. During the testing phase, this project continues the experiment with designing the forms characterizing the unseen connections and dynamics inside the YouTube video sharing system and aims to take the complexity outside of the box. The audience includes both the viewers and the creative content publishers that are heavily involved in this algorithm-controlled system.

### *Content Monetization & YouTube Ad System*

The connections between viewers and content publishers can be divided into two subsystems: the recommendation system and the advertisement system. As discussed previously, the goal of YouTube and its algorithms is about encouraging people to spend more time watching and interacting with the community. On the one hand, this is being reflected in the way that publishers create videos and viewers find videos via search or suggested. On the other hand, by publishing the videos to a channel, publishers can monetize the content by enabling the AdSense for Youtube.

YouTube started as a site of user-generated content and developed into a platform for commercialized and professional videos. As of July 2015, more than 400 hours of video were uploaded to YouTube every minute. As of September 2018, the number of subscribers of the most popular YouTube channels has reached over 65 million. Industries showed a deep interest in monetizing YouTube because of its popularity. After Google purchased YouTube, YouTube used a new e-commerce model: playing commercials during the streaming of videos.<sup>1</sup> The average cost per thousand for YouTube was \$7.60 in 2013, meaning the average income for each

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<sup>1</sup> Holland, Margaret. 2016. How YouTube Developed into a Successful Platform for User-Generated Content. *Elon Journal of Undergraduate Research in Communications* 7 (1), <http://www.inquiriesjournal.com/a?id=1477>

YouTube content creator was \$7.60 per every thousand views.<sup>2</sup> In order to earn revenue on YouTube, the latest requirement asks the applicant to have at least 4,000 watch hours in the previous 12 months and 1,000 subscribers. Google also keeps 45 percent of all advertising revenue, and the publisher gets the remaining 55 percent. Once AdSense is set up, Google automatically delivers ads that are targeted to the content. The targeting can be based on keyword analysis, word frequency, advertisers' specific ad placements, users' interests, demographics, and other criteria.<sup>3</sup>

### *Proof of Concept Prototype*

The first part of the prototype combines the proof of the list of services, the personal data and cookies being collected from the user, and the advertisement profiling of Google account and Google's prediction of the owner's interests. By scanning the barcode, the audience will be directed to the Google accounts page. In addition, it lists the channels being subscribed to by the user and the labor of watching the video. This tells the story of the interactions between a viewer and the YouTube video sharing platform.

The other version of receipt completes the story by presenting the interactions between a content publisher and the YouTube. It characterizes the content monetization to break down the transactions further. The data is based on YouTube API. All the data are collected by Social Blade, a website that compiles data from YouTube, Twitter, Twitch, Daily Motion, and Instagram and uses the data to make statistical graphs and charts that track progress and growth.<sup>4</sup> The CPM being used to estimate the earning needs to be further adjusted as Social Blade is based on a range of 0.25 to 4.00. At the time of November 30th, 2018, the receipt stated that for the publisher named PewDiePie, the number of total uploads since user created is 3,671, the number of total video views is 19,346,598,698, and the number of views of last 30 days is 317,832,000.

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<sup>2</sup> Rosenberg, Eric. "How Youtube Ad Revenue Works." Investopedia. October 20, 2018. Accessed December 17, 2018. <https://www.investopedia.com/articles/personal-finance/032615/how-youtube-ad-revenue-works.asp>.

<sup>3</sup> "How Ads Are Targeted to Your Site - AdSense Help." Google. Accessed December 17, 2018. [https://support.google.com/adsense/answer/9713?hl=en&ref\\_topic=1628432](https://support.google.com/adsense/answer/9713?hl=en&ref_topic=1628432).

<sup>4</sup> Urgo. "All About Social Blade." Unboxtherapy YouTube Stats, Channel Statistics - Socialblade.com. Accessed December 17, 2018. <https://socialblade.com/info>.

PewDiePie is a Swedish YouTuber, comedian, and video game commentator. He is known as the owner of the most-subscribed YouTube channel.

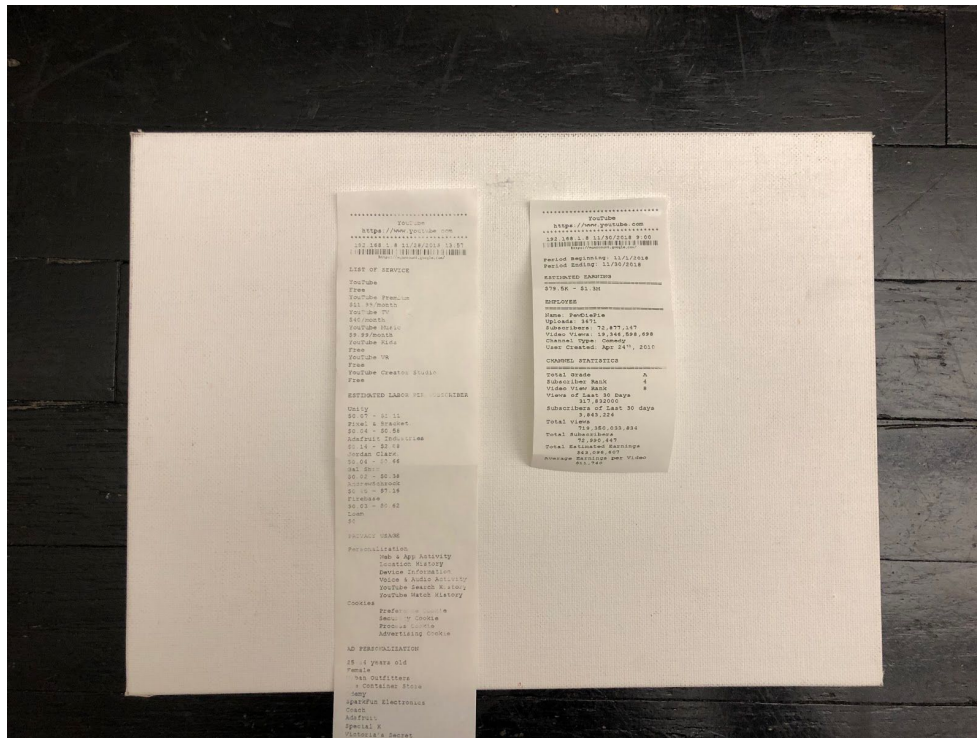


Figure 1. Receipts of the viewer and the content publisher

The final physical form of the prototype uses a Raspberry Pi, thermal printer guts, wires and an acrylic box created by laser cutting.<sup>5</sup> Wires and boards are exposed through the clear acrylic box to match the “transparency” theme. Raspberry Pi can talk to users’ laptop or any other devices connected to the Internet. By clicking on the “Print” button on the laptop, the printer will print out the pre-formatted receipt. It can be the version of the content publisher or the creator.

### *Reflection*

<sup>5</sup> "Networked Thermal Printer Using Raspberry Pi and CUPS." Memory Architectures | Memories of an Arduino | Adafruit Learning System. Accessed December 17, 2018. <https://learn.adafruit.com/networked-thermal-printer-using-cups-and-raspberry-pi/connect-and-configure-printer>.

About five user test sessions are conducted before and during the pop-up show. Each of the session takes about ten minutes. The users are required first to sit down and read the contents on the receipts thoroughly. The script of questions remains the same as what is tested in the prototyping phase. The questions asked by the user will also be logged as part of the user testing results.

Users, in general, can perceive that the story is about the input and output of the YouTube system, how the algorithm sees us as a viewer, and how the algorithm processes the data. The Ad profiling coming from Google account setting is the most effective part, as it is comparable to the self-definition except that a computer generates it. The fact that it is not accurate enough makes the comparison even more thoughtful. For the users that are not familiar with the algorithmic analysis of one's digital data, they guess about whether it is an online shopping history. People also ask the question about who is providing the data and whether it is a real-time reflection of their online activities. As most of the users tested are playing the role of the viewer, there is not much reflection on the version of the content publisher.

When users are not asked to sit down and read the contents thoroughly, they are less likely to understand the information. This seems to depict the hard-to-read nature of receipt. Even so, receipt still serves as a significant everyday object. It is closely related to the idea of exchange, return, and legal proof. The illustration of why revealing the unseen connections and dynamics is necessary also require further development. User's attention has not been accumulated enough always to trigger the discussion of algorithmic transparency.