

Thesis 2 Midterm Review

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This thesis is about algorithms and the dynamics inside an **algorithm-controlled system** like YouTube. It is about how algorithm takes data, monetizes content, and modifies human's behavior **hiddenly**.

It is a critical design piece to be **exhibited** in a gallery space that guides the audience to build the **connections** between different algorithmic components **inside the box**.

Domain: Digital media, Computer algorithm, Algorithmic society

1.35 billion

YouTube is the biggest online video platform featuring a wide variety of user-generated contents. In 2016, the number of YouTube users has reached **1.35 billion**. This number will climb to **1.86 billion** in 2021.

400 hours

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**.

31%

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.

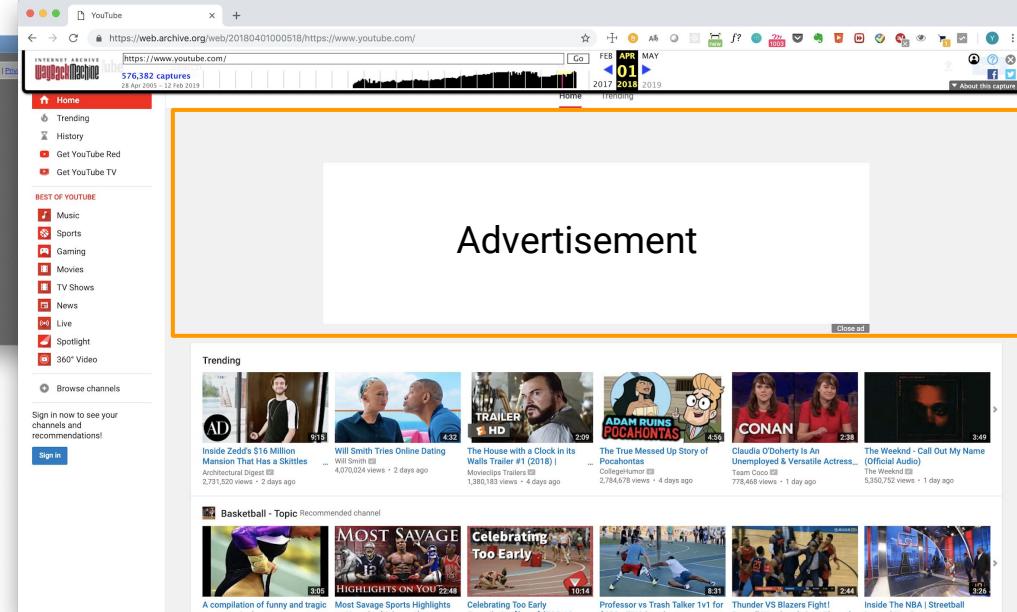
38.6%

In 2017, Google's share of total U.S. digital advertising revenues amounted to **38.6 percent**, as compared with **19.9 percent** share to Facebook.

YouTube 2005



YouTube 2018





▶ ▶ 🔍 0:01 / 1:19:36

ard.com

CC ⚙️ 🎞️ 🔍

Learn TensorFlow.js - Deep Learning and Neural Networks with JavaScript

24,926 views

772

10

SHARE

SAVE

...

Up next

AUTOPLAY

JavaScript: Understanding the
Weird Parts - The First 3.5...Tony Alicea
1.3M viewsfreeCodeCamp.org
Published on Nov 13, 2018

SUBSCRIBE 788K



JS

3:32:50

What is shown on the interface
(YouTube)

Feb 4 – Mar 3, 2019

Overview

Reach viewers

Interest viewers

Build an audience

Last 28 days

Watch time (minutes)

638

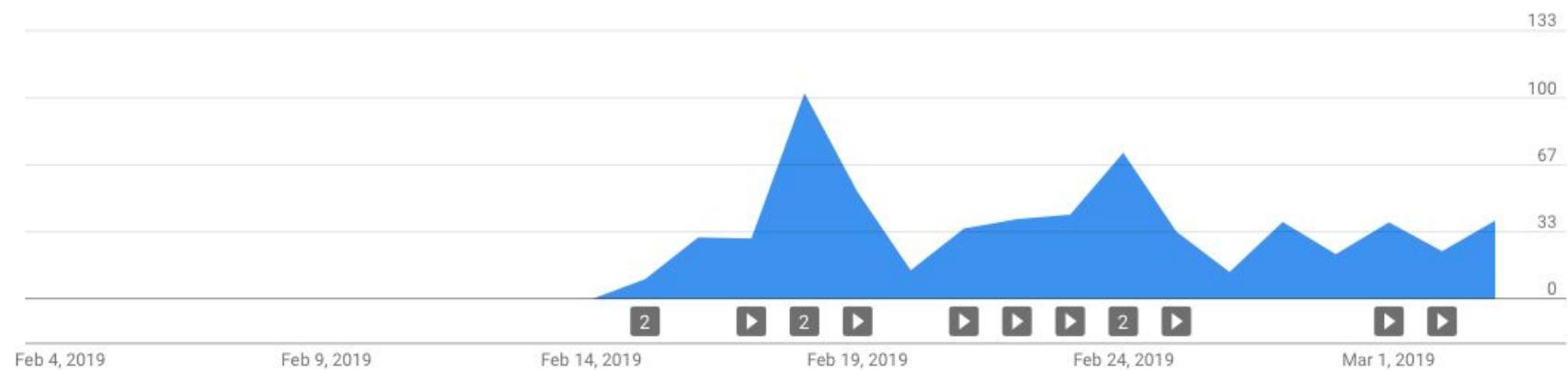
Views

313

Subscribers

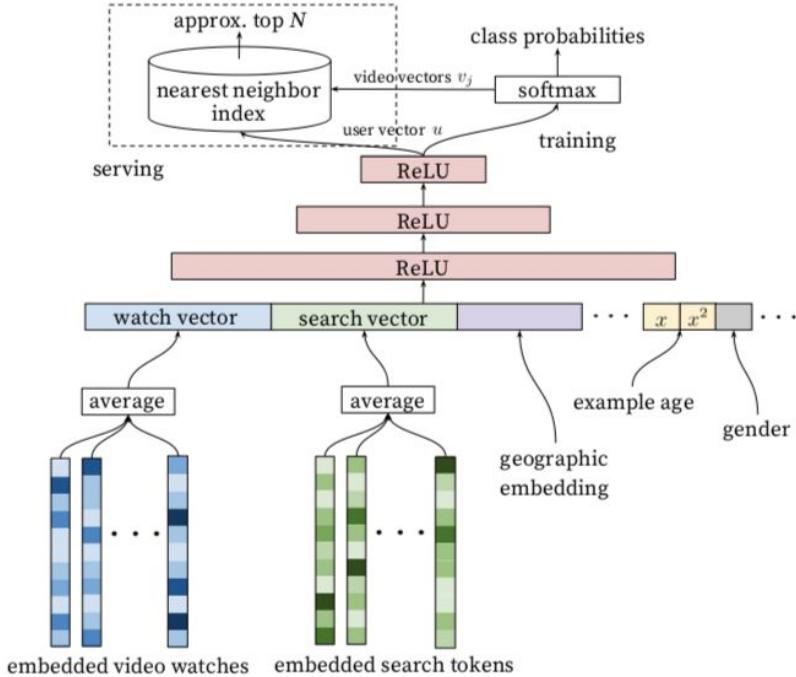
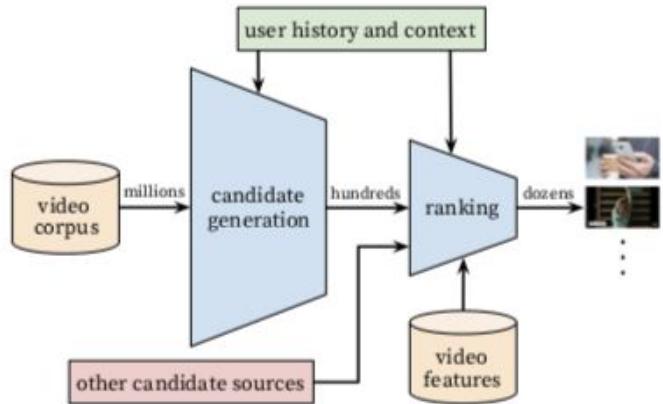
+17

Updated Mar 3, 2019, 3:00 AM



[SEE MORE](#)

What is shown on the interface
(YouTube Studio)



What is hidden behind

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/>.

**PewDiePie**UPLOADS
3,766SUBSCRIBERS
88,000,338VIDEO VIEWS
20,626,417,729COUNTRY
USCHANNEL TYPE
ComedyUSER CREATED
Apr 29th, 2010**APPLY FOR YOUTUBE PARTNERSHIP**[User Summary](#)[Future Projections](#)[Detailed Statistics](#)[Featured Box](#)[Similar Channels](#)[User Videos](#)[Live Subscriber Count](#)**A**
TOTAL GRADE**2nd**

SUBSCRIBER RANK

10th

VIDEO VIEW RANK

92nd

SOCIAL BLADE RANK

334,368,000 -3.5%
VIEWS FOR THE LAST 30 DAYS**4,426,097** +13.7%
SUBSCRIBERS FOR THE LAST 30 DAYS**\$83.6K - \$1.3M**
ESTIMATED MONTHLY EARNINGS**\$1M - \$16M**
ESTIMATED YEARLY EARNINGS

What is hidden behind
(socialblade.com)

videoid	title	genre	paid	isFamilyFriendly	duration	views	dislikeCount	likeCount	commentCount
LthmNJzkER	Drawing with Procreate on iPhone	People & Blogs	FALSE	FALSE	249	15087	6	961	94
JFqiSr9A-Go	DIY Home Office and Desk Tour — A Designer's Workspace	Howto & Style	FALSE	FALSE	506	790113	389	40558	2518
JdJCbunWhI	ULTIMATE Desk Setup 2019 Tour! - Minimal x Productive	Science & Technology	FALSE	TRUE	693	217097	445	4753	395
G2VxwFEA8	No, THIS is the CLEANEST Setup.	Science & Technology	FALSE	TRUE	947	3642232	3189	97682	11058
hUBSxCJeU	iPad Pro Bend Test! - Be gentle with Apples new iPad...	Howto & Style	FALSE	TRUE	471	8980932	32280	169277	43256
TCrAqs-WRq	iPhone Xs Max Teardown - Is there any Thermal Cooling?	Howto & Style	FALSE	TRUE	601	4876837	5516	89383	12308
WKayUI0spp	New iPhone Xs DROP Test!! - I was wrong...	Howto & Style	FALSE	TRUE	670	3289963	3524	69335	12747
wIL3VwU-B4	Fresh Tutorial of iPhone 7 Plus Cracked Screen Refurbishing	Science & Technology	FALSE	TRUE	866	2805036	456	3529	380
q14cVrEAIZU	How to Replace the Xiaomi Mi Max Screen	Science & Technology	FALSE	TRUE	1200	2708142	320	1666	224
XPjvQ7sH8g	Galaxy J7 Glass Only Replacement (FULL GUIDE) - J7 2016	Science & Technology	FALSE	TRUE	554	1455029	1011	5285	317
S6q4yrHbXTv	Galaxy J7 2017 Glass Only Replacement - Complete guide 60FPS	Science & Technology	FALSE	TRUE	626	1849346	1222	7378	333
syC-HJLjokl	Arduous Demo - iPhone X OLED Screen Glass Only Repair	Science & Technology	FALSE	TRUE	862	286354	136	2299	172
nuZz_D1uR1	How To Fix iPhone X Won't Turn On With Logic Board Repair	Science & Technology	FALSE	TRUE	564	238069	80	2409	209
bJCuMFeUiG	How To Fix iPhone X Face ID Not Working After Repairing	Science & Technology	FALSE	TRUE	704	173294	67	1590	121
ffJJpVGP-a4	How To Replace iPhone X Broken Front Glass With Q5 Laminator	Howto & Style	FALSE	TRUE	1027	155496	93	896	70
ynyaseuL3RE	iPhone XS/XS Max Broken Screen Glass Only Repair - Step By Step	Science & Technology	FALSE	TRUE	732	28331	16	708	61
w0s9OTZKOI	\$99 Fake iPhone XR - How Bad Is It?	Science & Technology	FALSE	TRUE	1020	3879950	7040	35831	4646
cpE02hQWIJ	\$95 Fake Samsung Galaxy Note 9 - How Bad Is It?	Science & Technology	FALSE	TRUE	1168	1377532	1896	9386	2253
DIEjLDrgzP0	\$150 Fake iPhone X vs \$1150 iPhone X! How Bad Can It Be?	Entertainment	FALSE	TRUE	914	2291140	1779	32889	4134
5ZnKhBsTdh	Best Waterproof iPhone 6S Cases - Homemade Edition	Entertainment	FALSE	TRUE	532	3479979	1943	32553	5057

What is hidden behind

Proof of Concept

12:01 ↗ myaccount.google.com

Google Account   

Personal info Data & personalization Security

Activity controls

You can choose to save your activity for better personalization across Google. Turn on or pause these settings at any time.

-  Web & App Activity  On
-  Location History  On
-  Voice & Audio Activity  Paused
-  Device Information  Paused
-  YouTube Search History  On
-  YouTube Watch History  On

[Manage your activity controls](#)

10:38 ↗ adssettings.google.com

≡ Google Ad Settings 

Ad personalization

Google makes your ads more useful on Google services (such as Search or YouTube), and on websites & apps that partner with Google to show ads. [Learn more](#)

Ad personalization is ON 

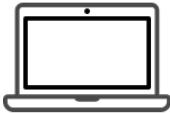
[MORE OPTIONS](#)

How your ads are personalized

Ads are based on personal info you've added to your Google Account, data from advertisers that partner with Google, and Google's estimation of your interests. Choose any factor to learn more or update your preferences. [Learn more](#)

-  25-34 years old
-  Female
- 



User's laptop

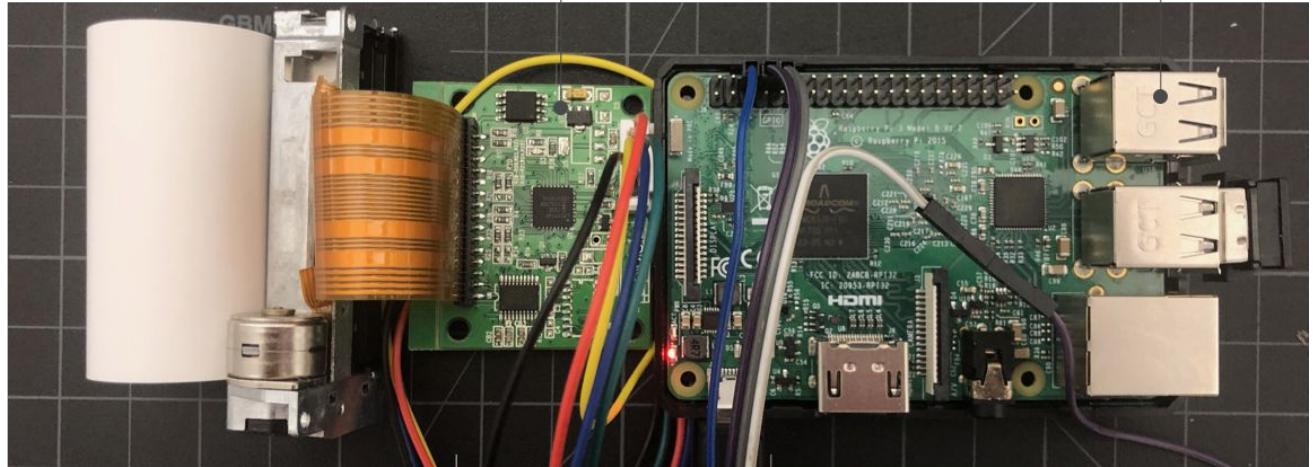
- communicate with Raspberry Pi
- host the document to be printed

Thermal printer guts

- communicate with Raspberry Pi
- require additional power supply
- print with thermal printer paper roll

Raspberry Pi

- communicate with other network devices
- require additional power supply
- printer is added through serial port
- require a printer driver install



TTL connection

Proof of Concept

YouTube
<https://www.youtube.com>

192.168.1.8 11/28/2018 13:57

<https://myaccount.google.com/>

LIST OF SERVICE PRICE

YouTube	Free	
YouTube Premium	\$11.99/month	
YouTube TV	\$40/month	
YouTube Music	\$9.99/month	
YouTube Kids	Free	
YouTube VR	Free	
YouTube Creator Studio	Free	

SUMBSRIPTIONS ESTIMATED LABOR

Unity	\$0.07 - \$1.11	
Pixel & Bracket.	\$0.04 - \$0.58	
Adafruit Industries	\$0.14 - \$2.08	
Jordan Clark.	\$0.04 - \$0.66	
Gal Shir	\$0.02 - \$0.38	
AndrewSchrock	\$0.45 - \$7.16	
Firebase	\$0.03 - \$0.62	
Loem	\$0	

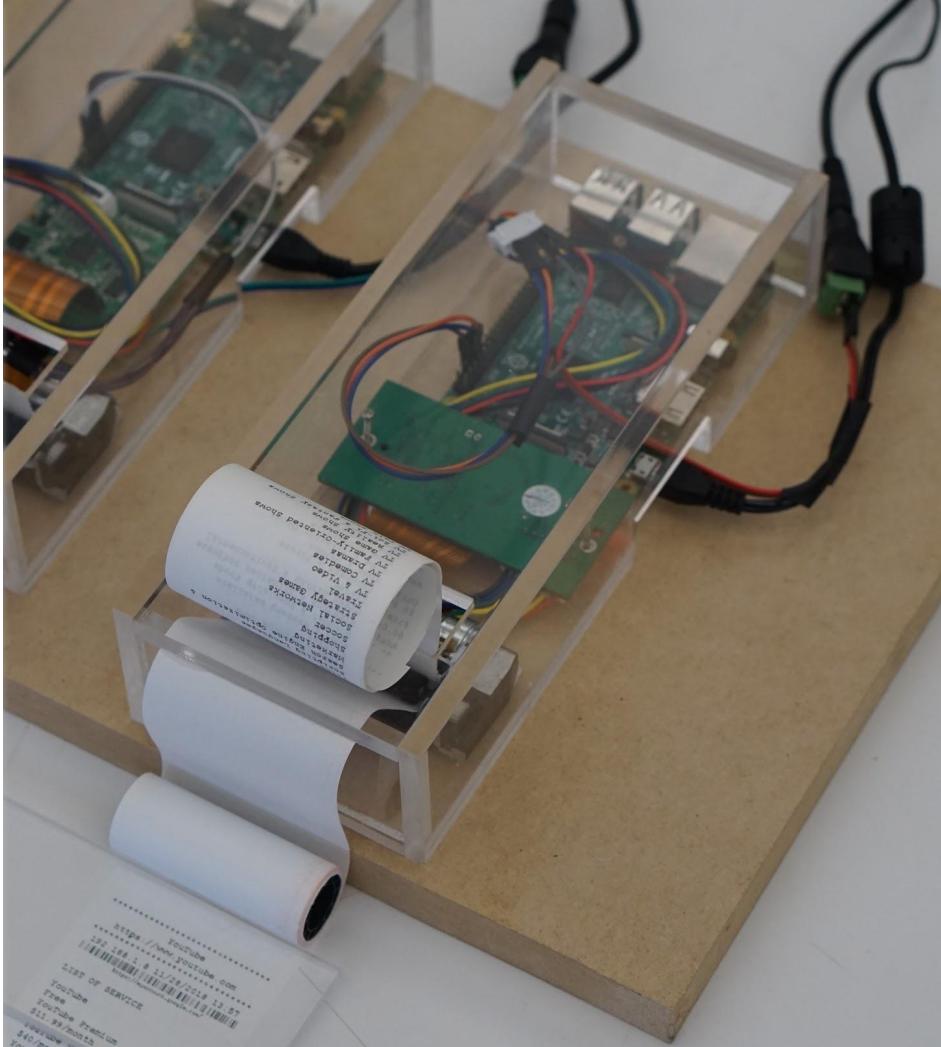
LIST OF PRIVACY USAGE

Personalization	
Web & App Activity	
Location History	
Device Information	
Voice & Audio	
Activity	YouTube Search
History	YouTube Watch History
Cookies	Preference Cookie Security Cookie Process Cookie Advertising Cookie

AD PERSONALIZATION

=====

25-34 years old
Female
Urban Outfitters
The Container Store



Proof of Concept

Science Fair

"Like the tangible experience"

"Is it about the data stored in my phone"

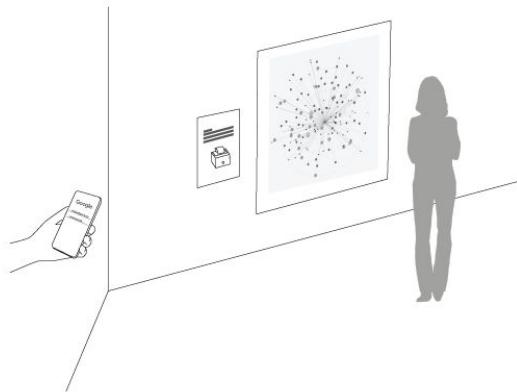
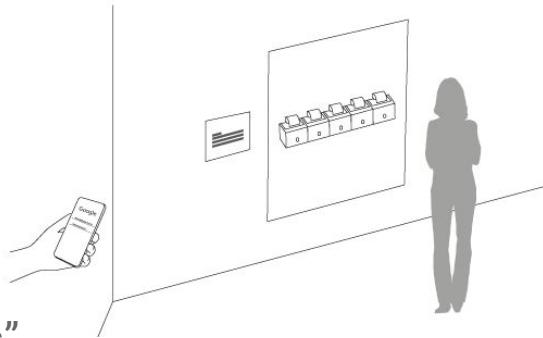
"Allow the user to experience the algorithms"

"Artifacts"

"Two different identities"

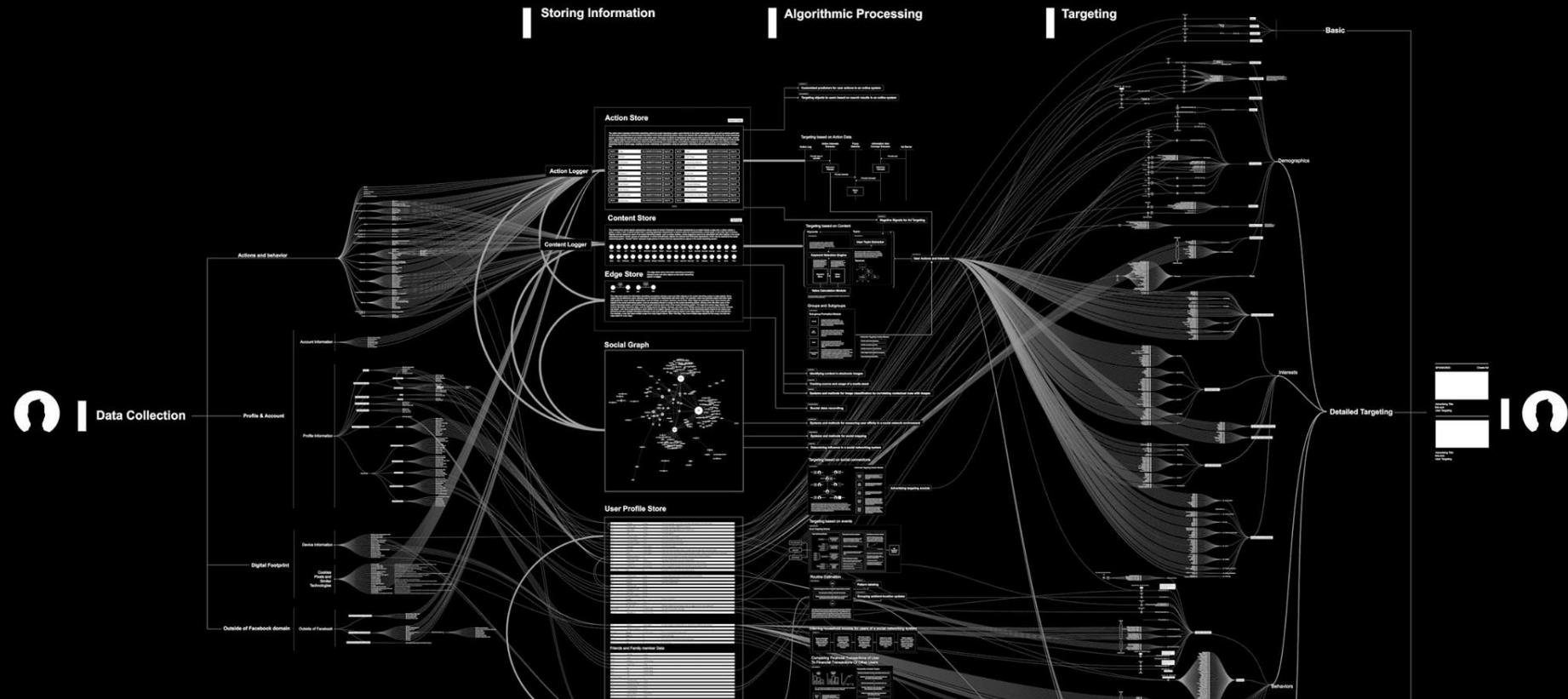
"Receipt has a hard-to-read format"

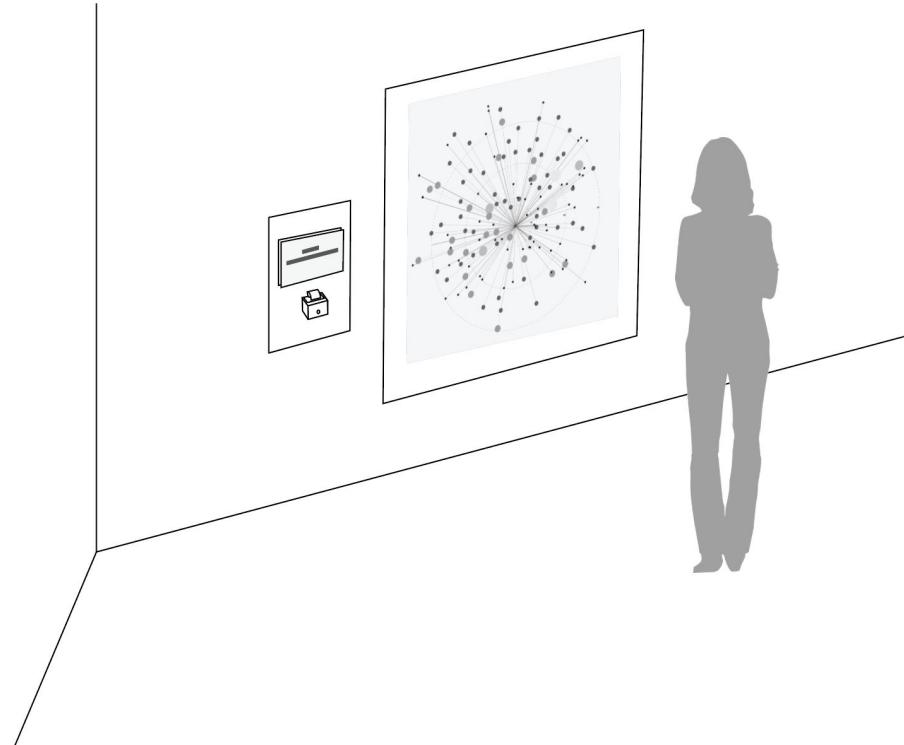
Proposal 1 vs. proposal 2



Precedent - Facebook Algorithmic Factory by Share Lab, 2016

Keywords: algorithmic society, algorithm performing the labour, digital content, metadata, prediction



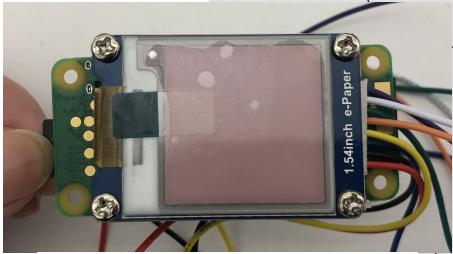


Final Format

Exhibition setup

Final Format

Physical visualization



Final Format “Electronic shelf label”



Final Format

Data collection

```
*****
YouTube
https://www.youtube.com
*****
192.168.1.8 11/28/2018 13:57
https://myaccount.google.com/
```

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YouTube Creator Studio	Free

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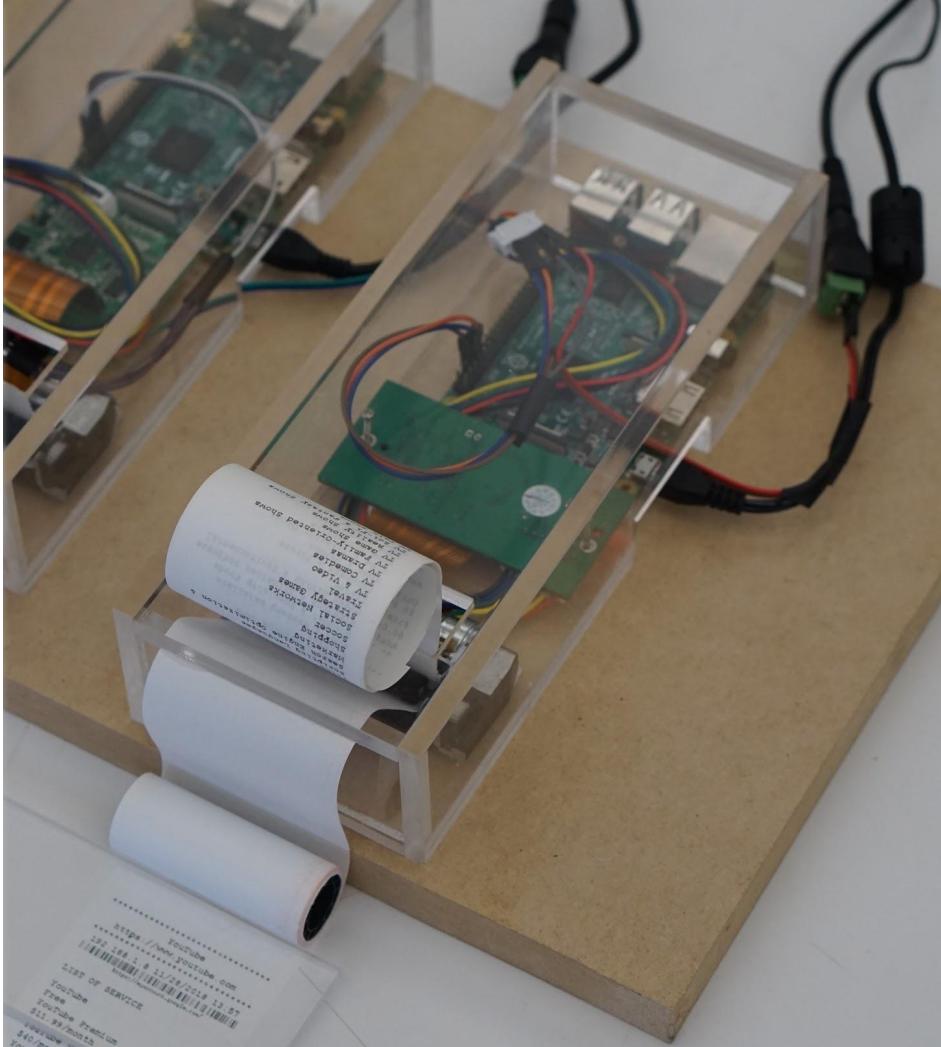
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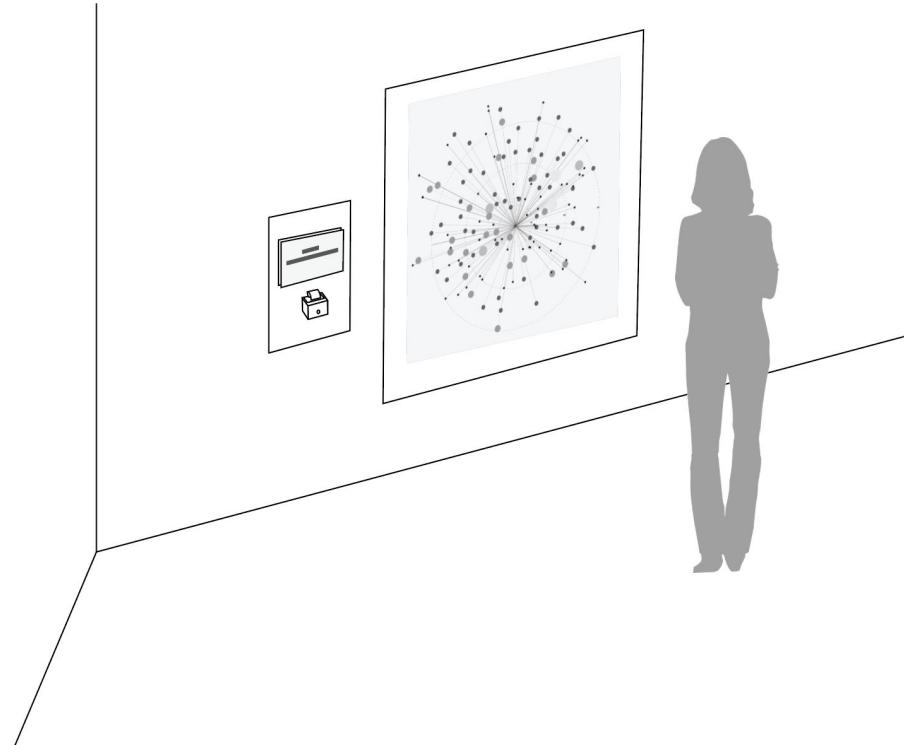
AD PERSONALIZATION

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The Container Store



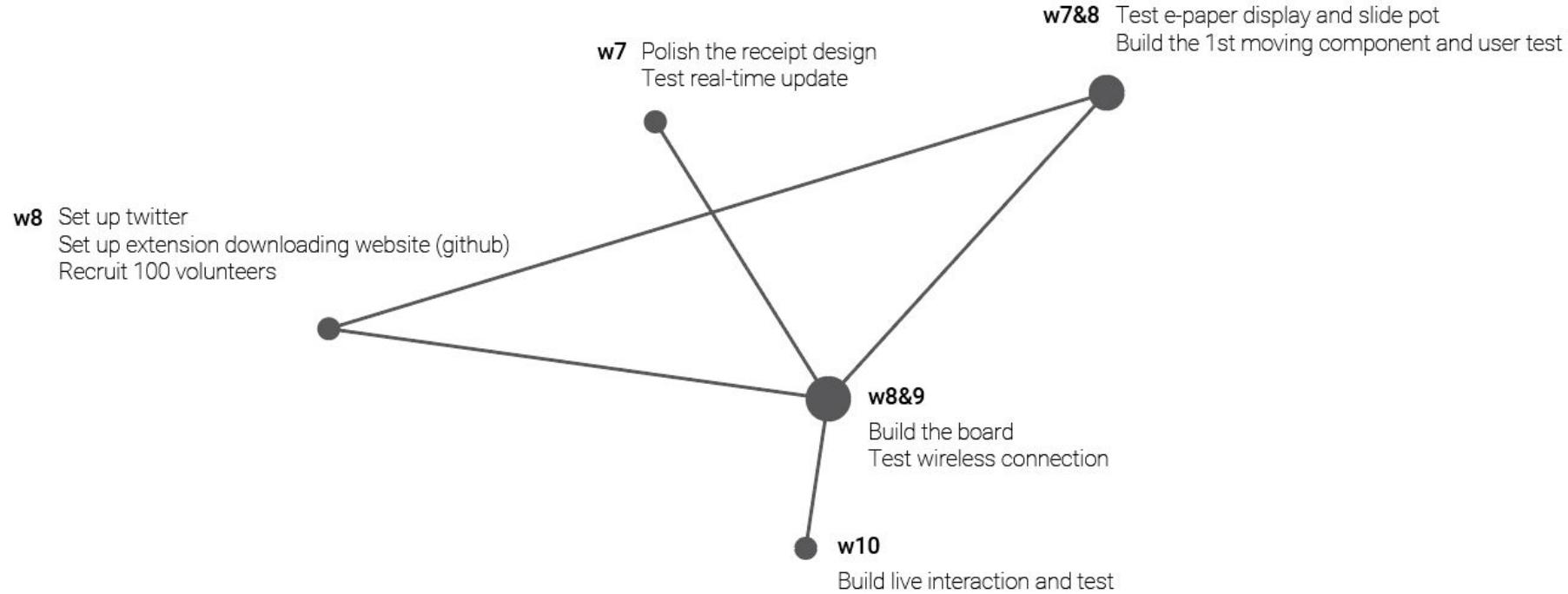
Final Format

Receipt as a take-away



Final Format

Exhibition setup



Timeline

Inside the box

A conversation between
we as the user and the product
we are using

