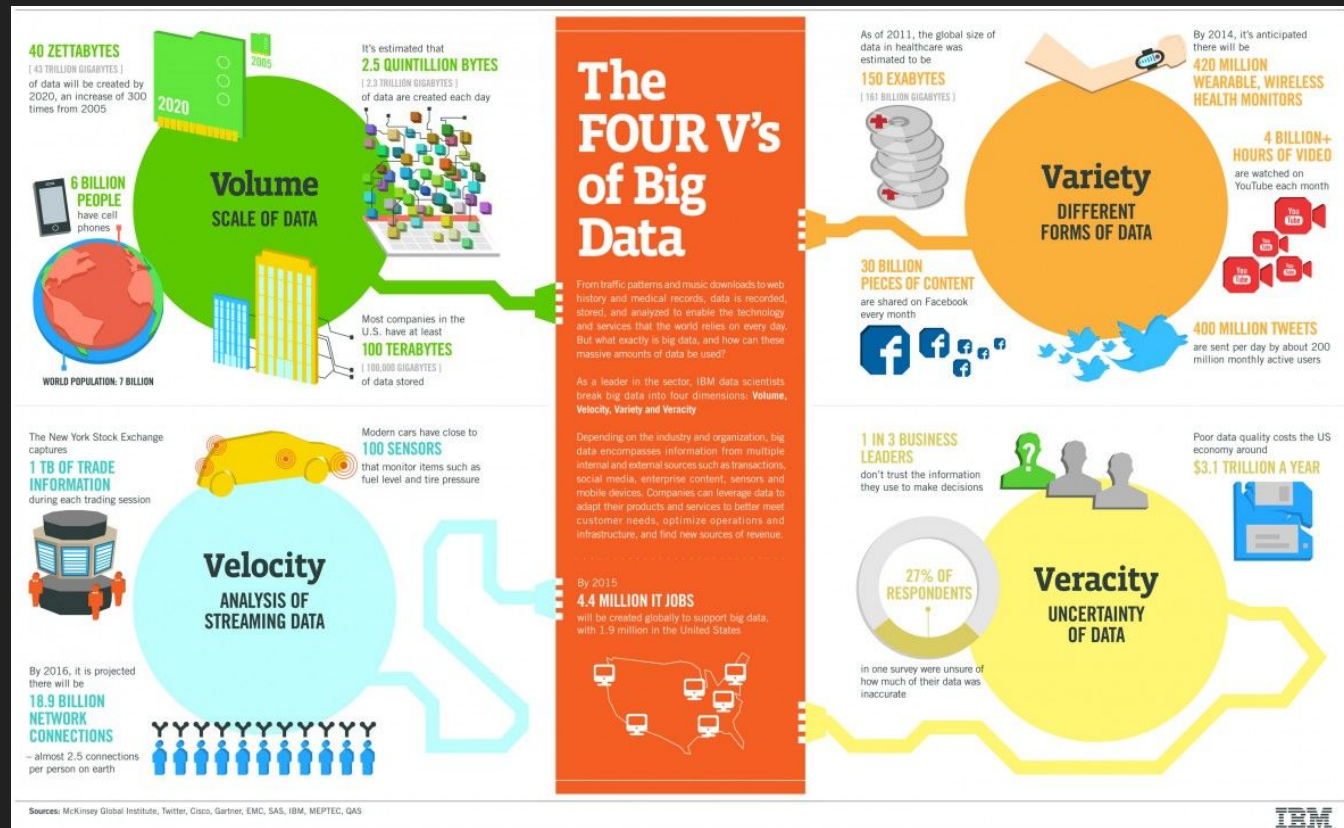


# Towards Participatory Democracy in the Big Data Age

Raazesh Sainudiin, Dept. of Mathematics, Uppsala Univ.  
Feb 15, 2018

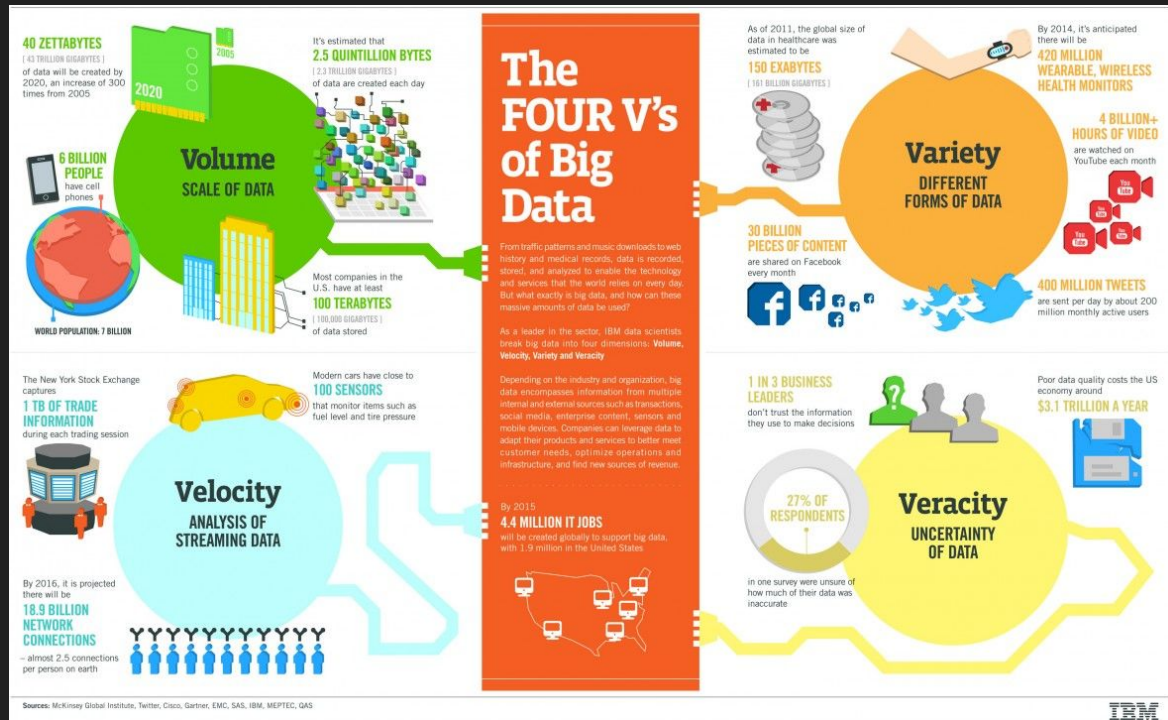
# What is the Big Data Age?

- Volume
- Velocity
- Variety
- Veracity

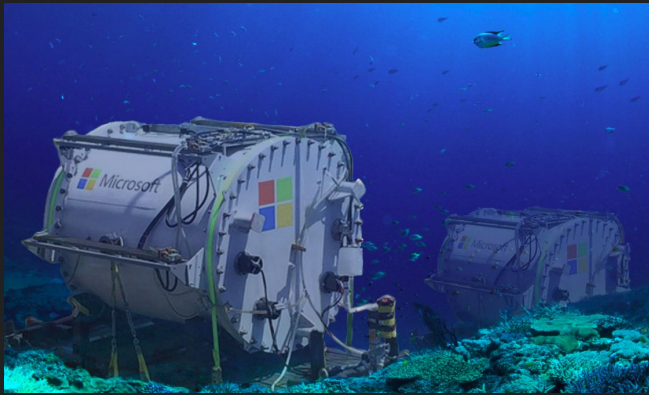


# What/Who is producing Big Data?

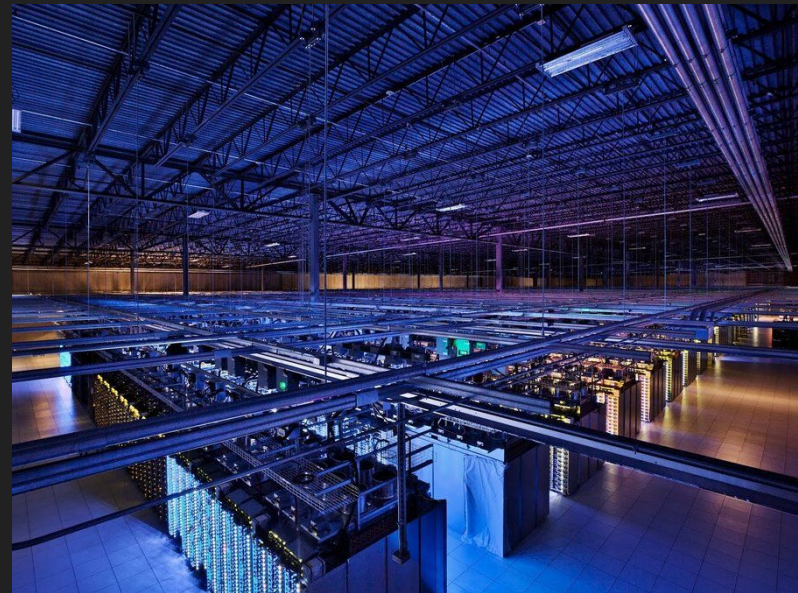
- people's online activity
- Machines and sensors
- more generally "things"



# Where do we Store & Compute the Big Data?



- *in huge computer farms*
- “Cloud” Storage and Computing



# Why is Data called the “New Oil”?

- improve processes by exploiting patterns in the data - *prediction?*
- How are patterns in data used for prediction?



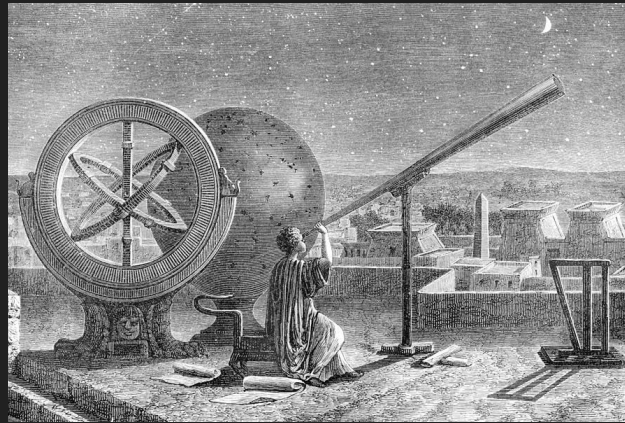
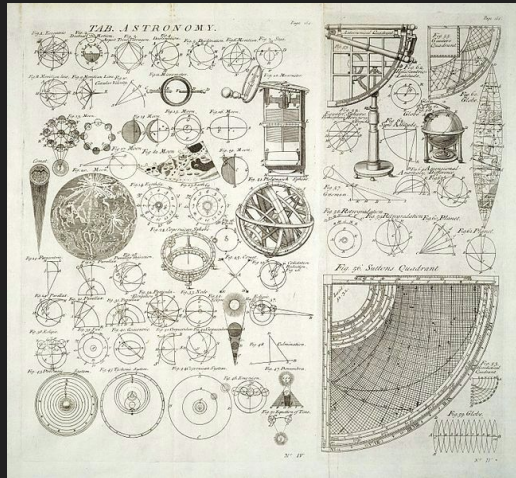
source: <https://www.economist.com/news/leaders/21721656-data-economy-demands-new-approach-antitrust-rules-worlds-most-valuable-resource>

Is making prediction from observation new?

# Is making prediction from observation new?

No!

Astronomy is ancient.



How do you make prediction from observation?

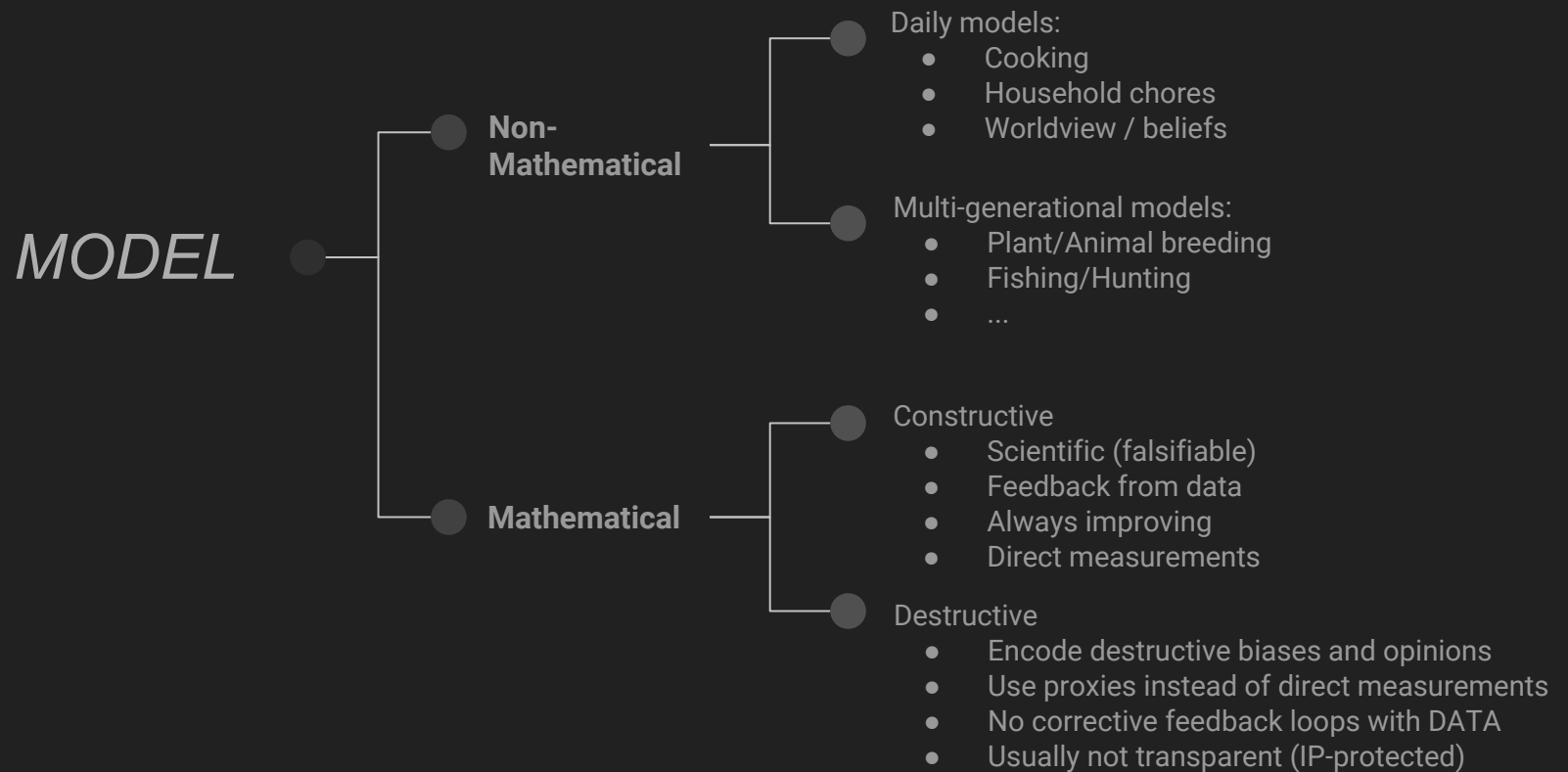
# How do you make prediction from observation?

The way you can go from observation to prediction is via a MODEL

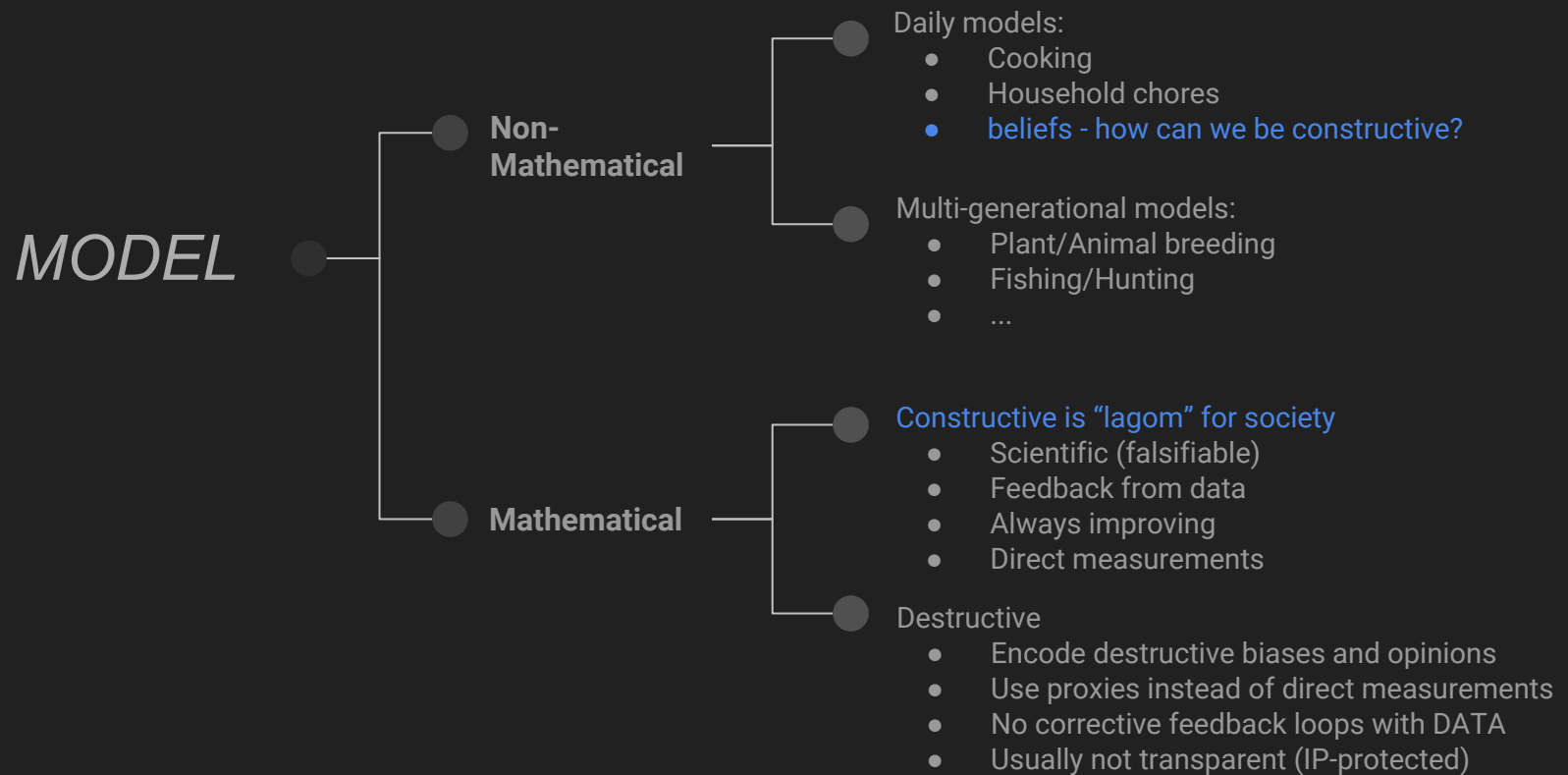


- Use DATA (past experience) as a feedback to improve your predictive model
- Model can be:
  - Non-mathematical (what we do with our brains all the time)
  - Mathematical (usually implemented as computer algorithm in the cloud)

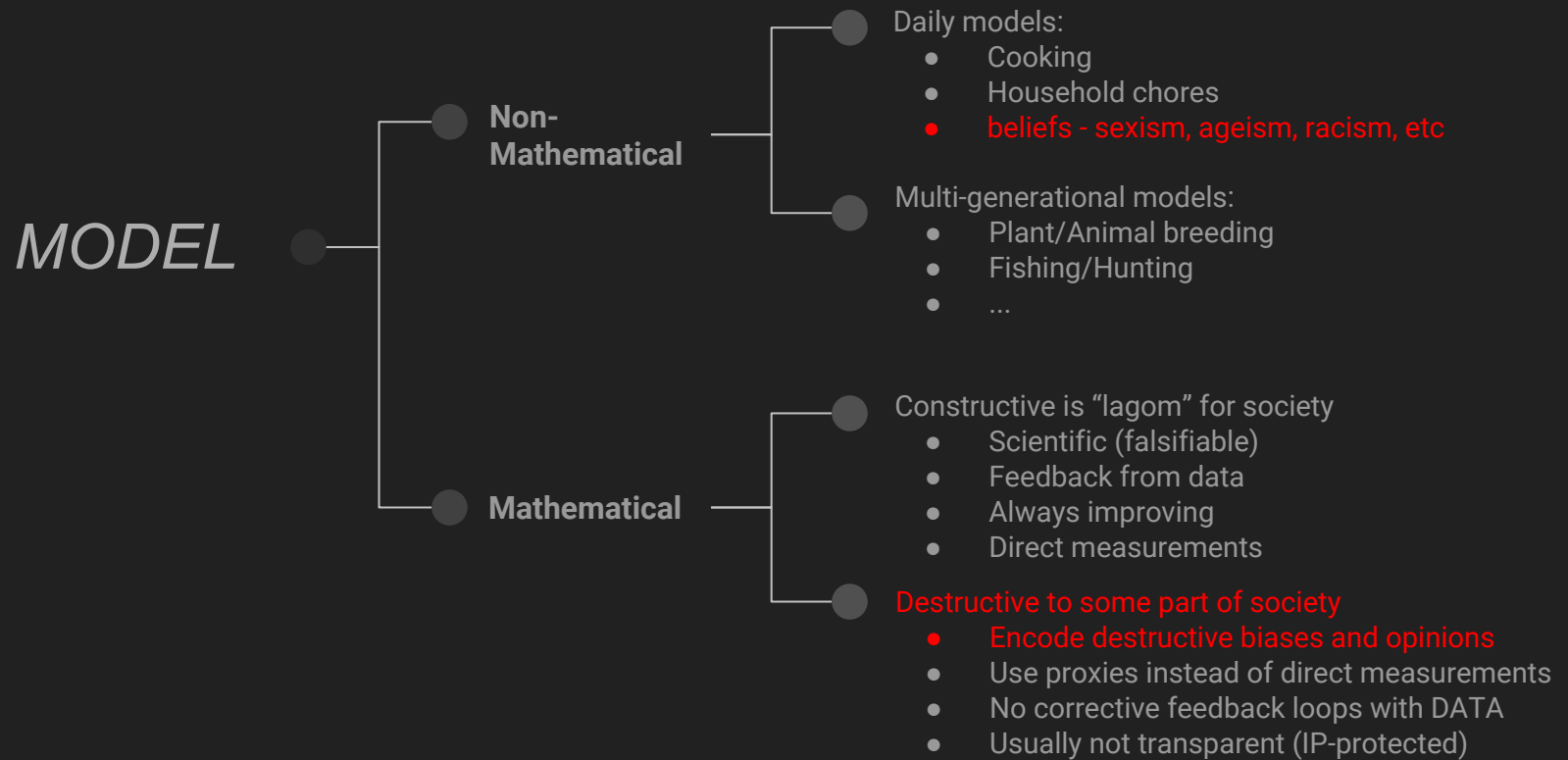
# How do you make prediction from observation?



# Models are biases & opinions encoded using mathematics in a computer program



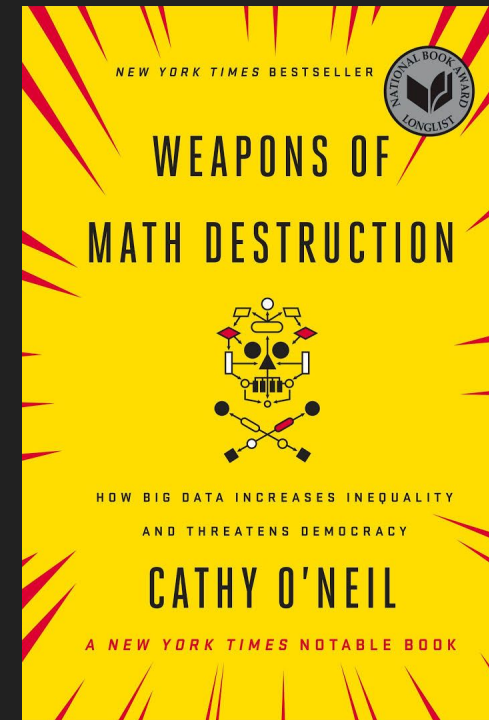
# Models are biases & opinions encoded using mathematics in a computer program



# Models are used to automate life-changing decisions

- Algorithmic Trading in Finance
- Universities rat race for World Rankings
- Online Advertisement
- Getting a Job
- Performance in a Job
- Predictive policing & criminal justice (US)
- Getting credit
- Getting insurance
- Individually *micro-targeted citizen in social media*
- *Let's listen Cathy speak for 10 minutes now:*

○ [https://www.ted.com/talks/cathy\\_o\\_neil\\_the\\_era\\_of\\_blind\\_faith\\_in\\_big\\_data\\_must\\_end#t-786714](https://www.ted.com/talks/cathy_o_neil_the_era_of_blind_faith_in_big_data_must_end#t-786714)



# What can we do about it?

Fight back!

We have been working on Project MEP

<https://lamastex.github.io/scalable-data-science/sds/research/mep/>

To help shed transparent light on

- *How we are possibly micro-targeted as citizens in social media (US Election)?*

*Looking for coders who want to help with similar projects around SE Election:*

- *Uppsala Big Data Course Set next period: <https://lamastex.github.io/360-in-525/>*
- *Create an “ideological forest of Swedish peoples from their Twitter activity in public streams”*