INTELLIGENT SOCIAL RECOMMENDATIONS

Thomas Bredillet (tnb@fb.com)

AGENDA

1 What are we trying to solve

2 What we learned

3 What's next?

WHAT ARE WE TRYING TO SOLVE

PROBLEMS

How can we use intelligent algorithms to improve the Instagram experience? What are they key issues where A.I can help our users?

Never miss friends and family content

Reverse chronological ranking means you'll see content from whomever posts most frequently

Surface quality

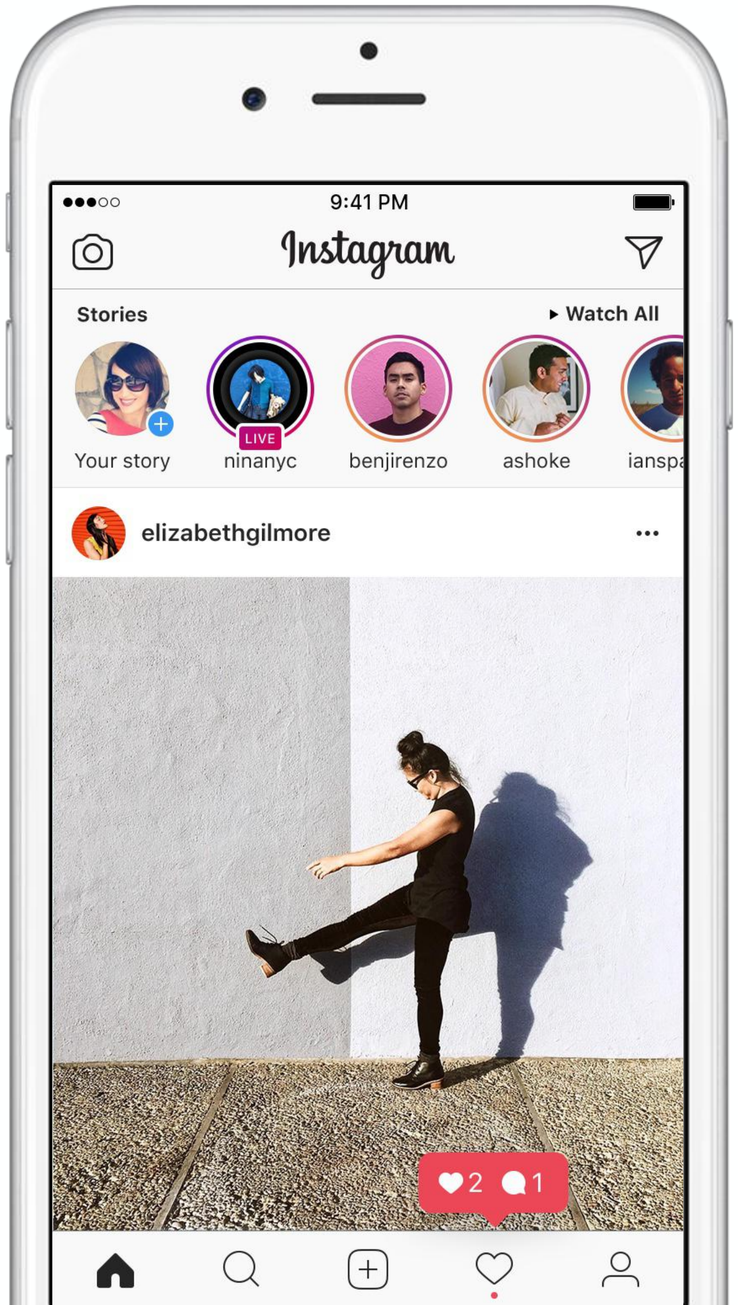
Amongst all the new available content we need to decide what stands out for you personally

Source hashtags

Following a hashtag means we have to find the best K new medias amongst an almost limitless pool of great content

Understanding the context

Could we improve our users' experience by factoring things such as cellular reception?



DOES FEED RANKING WORK?

Yes!

Engagement

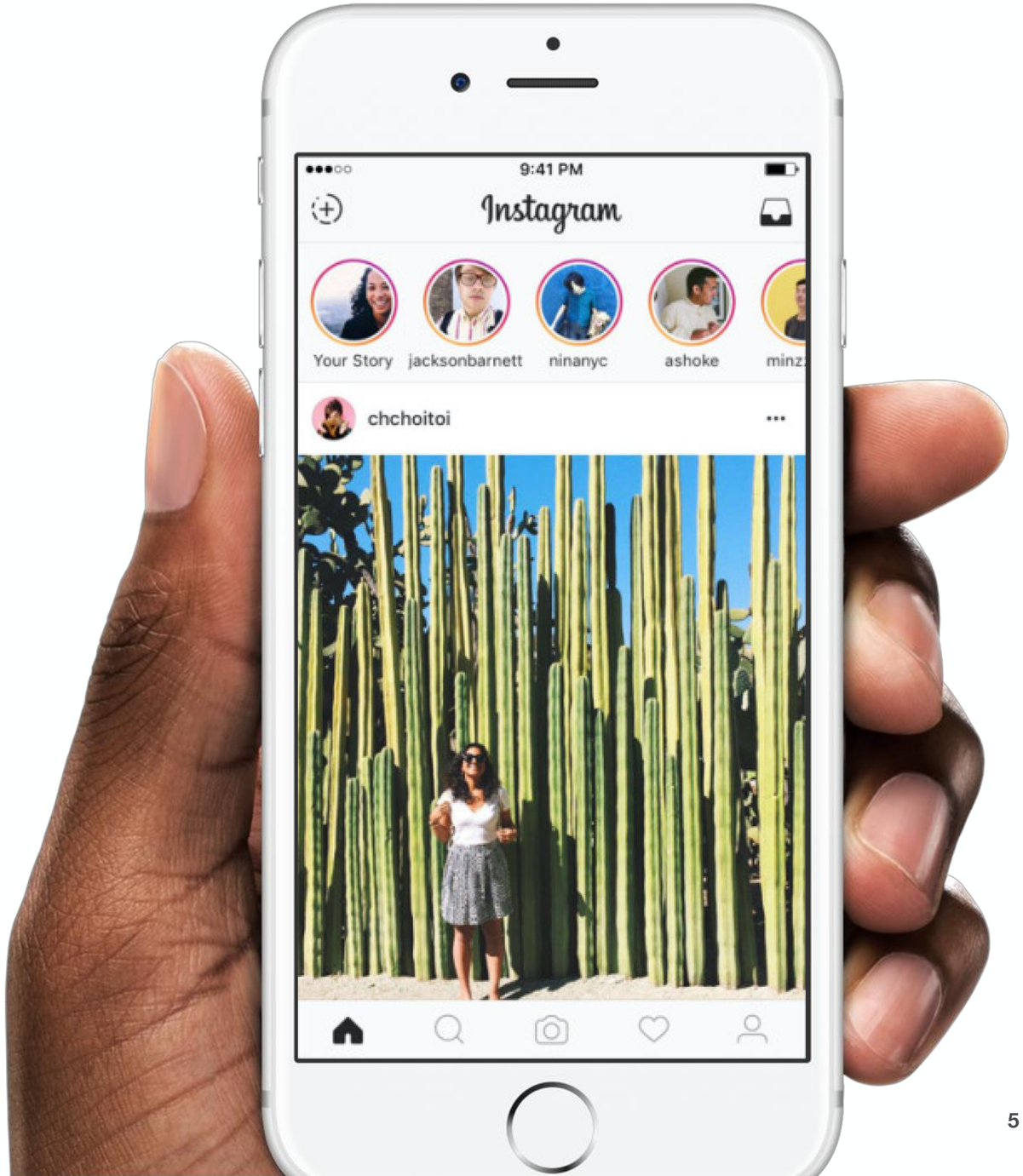
Getting an A.I ranking feed means you will engage with significantly more content than if you get chronological ranking.

Content

People getting our algorithms see more posts from their friends and family.

Sentiment

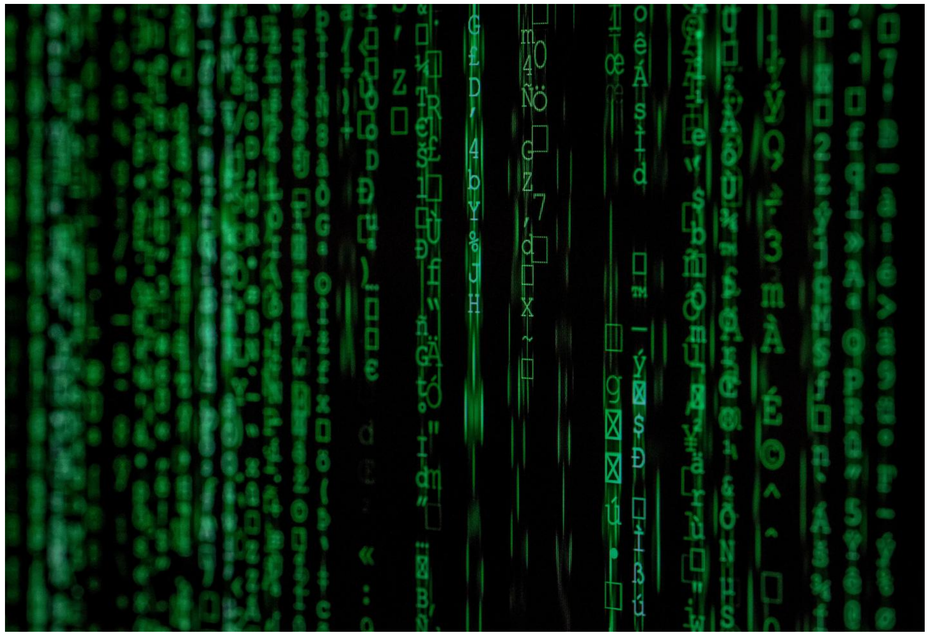
A strong sign that our machine learned models are providing a much better experience is that users sentiment is much higher with our intelligent feed



WHAT WE LEARNED

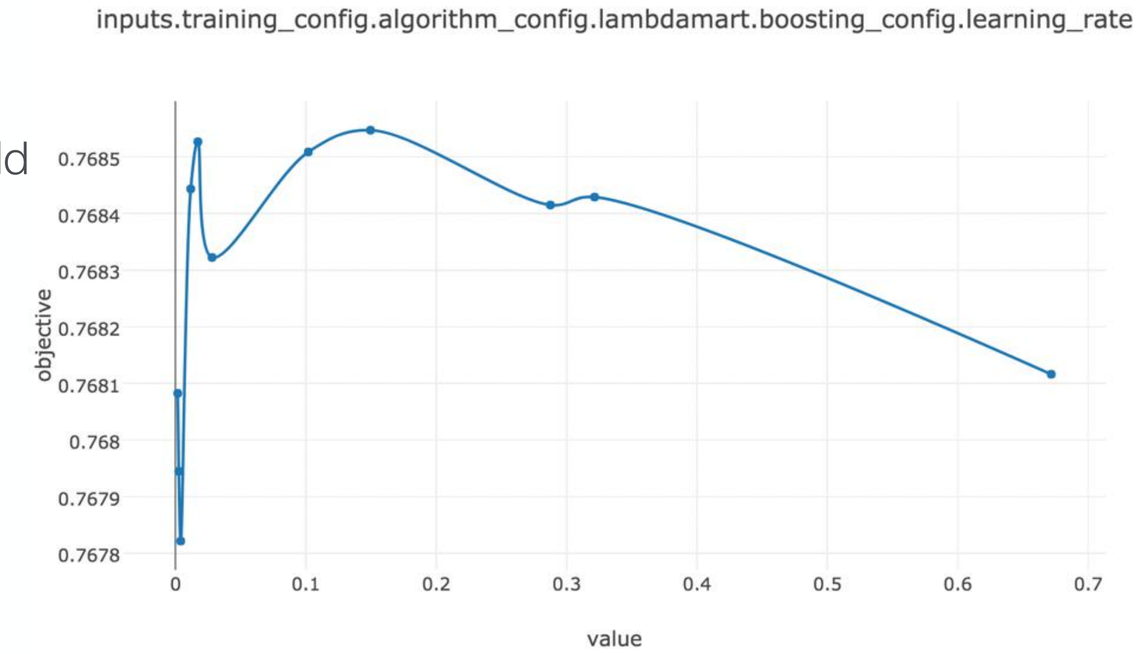
DATA

- It's all about setting up the proper problem to enable machines to learn and generalize
- Data storage and organization at scale is hard
- Effective client logging is key, those are the atomic components and the ground truth for our algorithms
- Content understanding helps relevancy



DATA FRESHNESS AND TRENDS

- The importance of stationarity!
- Helping our algorithms learn properly over time as the world evolves
- Avoiding A.I feedback loops



EXPERIMENTATION - SMALL EFFECTS

- What represents an experiment in the world of A.I?
- Solid best practices and scientific method
- Trade off between iteration speed and accuracy
- A.I informs business learnings and ecosystem understanding!
- Scaling ML teams

Photo by Louis Reed

NOVELTY EFFECTS

- Novelty effects are hard to factor in our A.I pipelines
- Some experiments are more prone to novelty effects than others
- We need proper experiment termination guidelines

DIFFERENT SHAPES FOR A.I

- A solid heuristic shouldn't be discounted too fast!
- Trade-offs between sophisticated Machine Learning and light weight statistical modeling
- Holdouts are key to any A.I enabled systems
- Diminishing returns vs research efforts

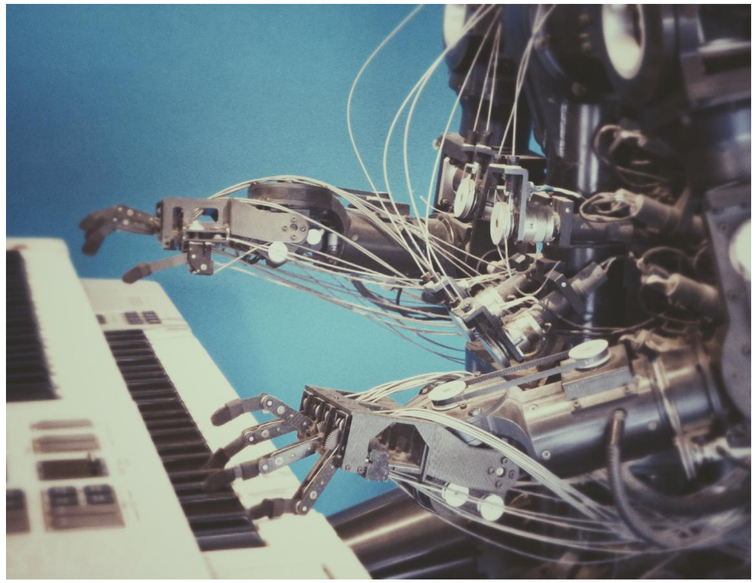
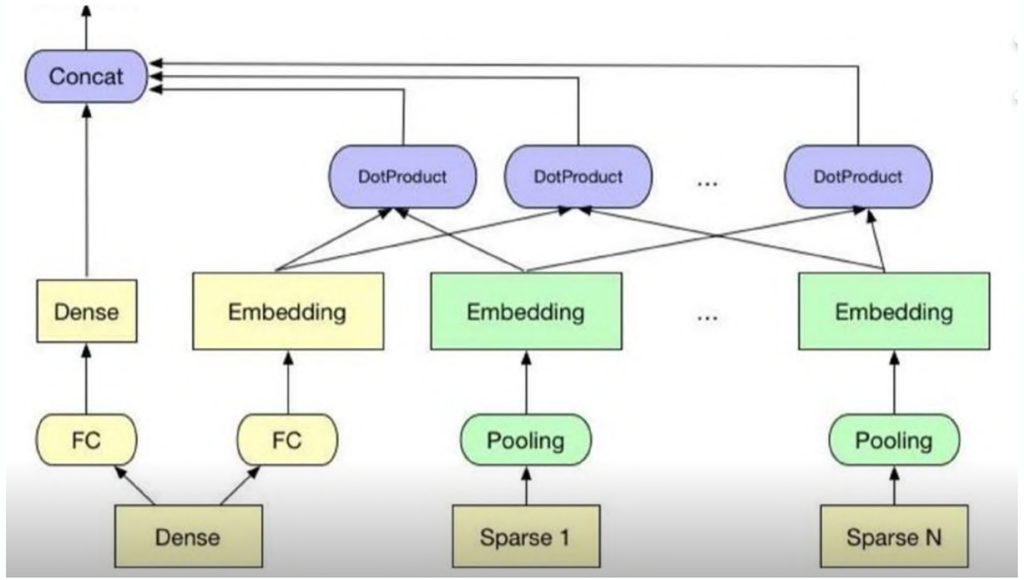


Photo by Franck V.

POINT WISE MODELS

- Understanding our users
- Feedback is a gift!
- Optimizing for the right business goals



VALUE MODELING

Where the business logic goes

- We need to combine our different probabilities in one final score
- The value model is where human intervention meets A.I
- Enforced business logic

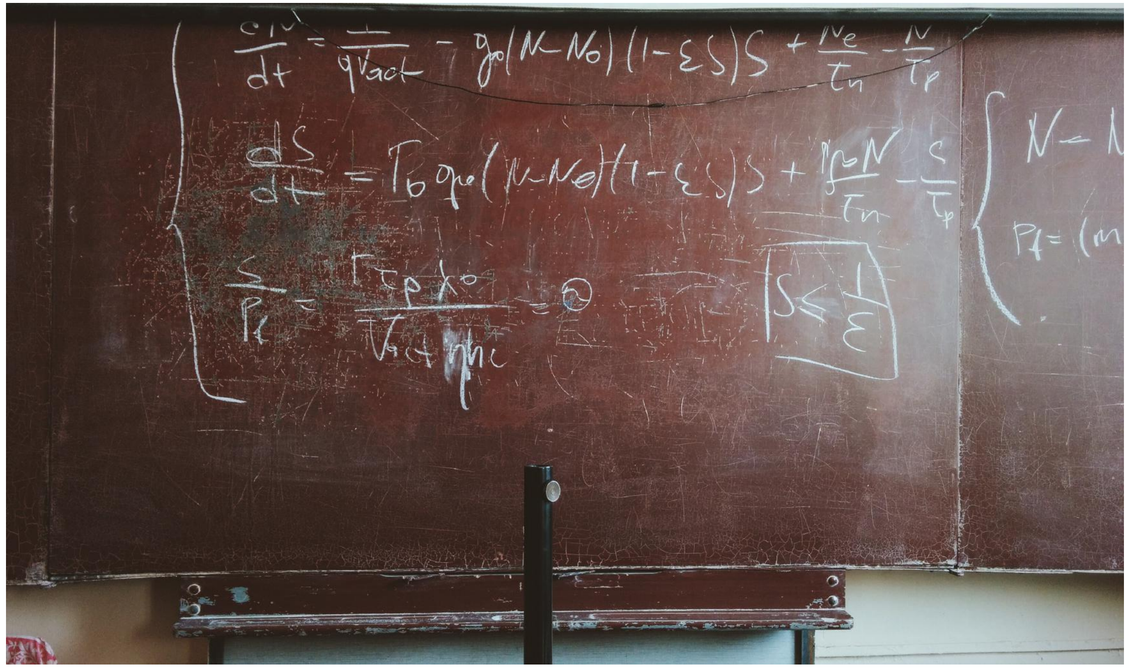
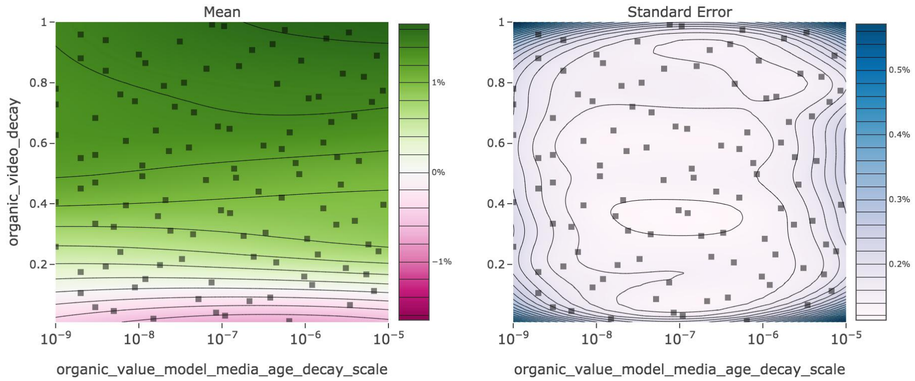
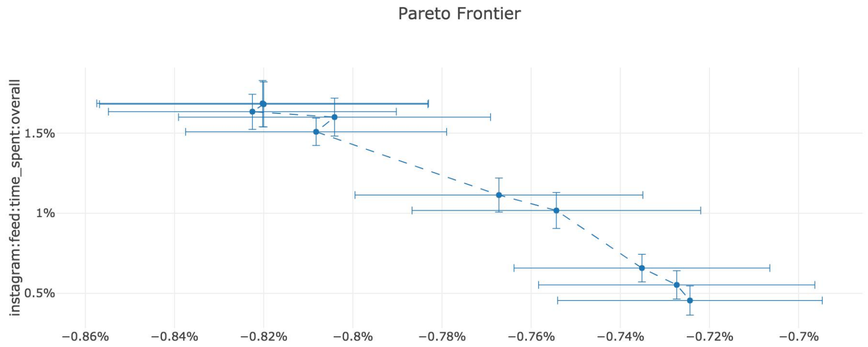


Photo by Roman Mager

BAYESIAN HYPER PARAMETER TUNING

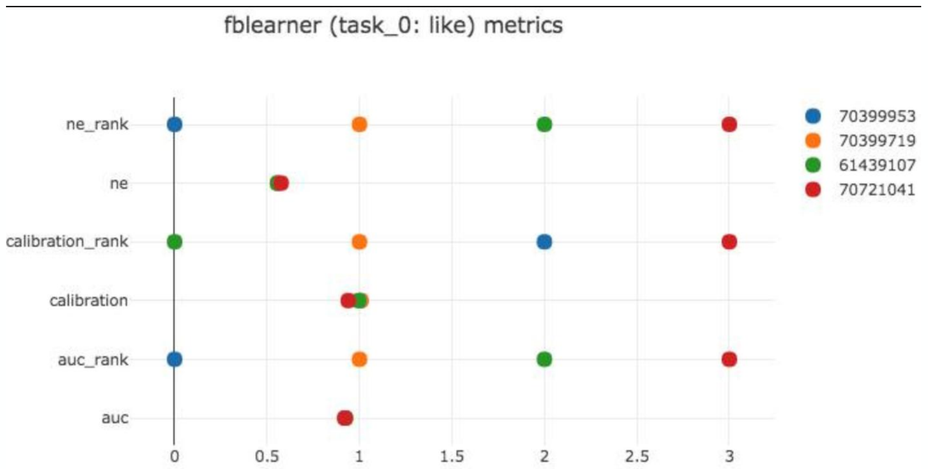
- Having an A.I to overview other A.Is
- Processing and constantly tuning our signals
- Giving us clear business trade-offs between metrics we care about
- Providing us levers and knobs to incentivize specific behaviors





ITERATION SPEED - OFFLINE ANALYSIS

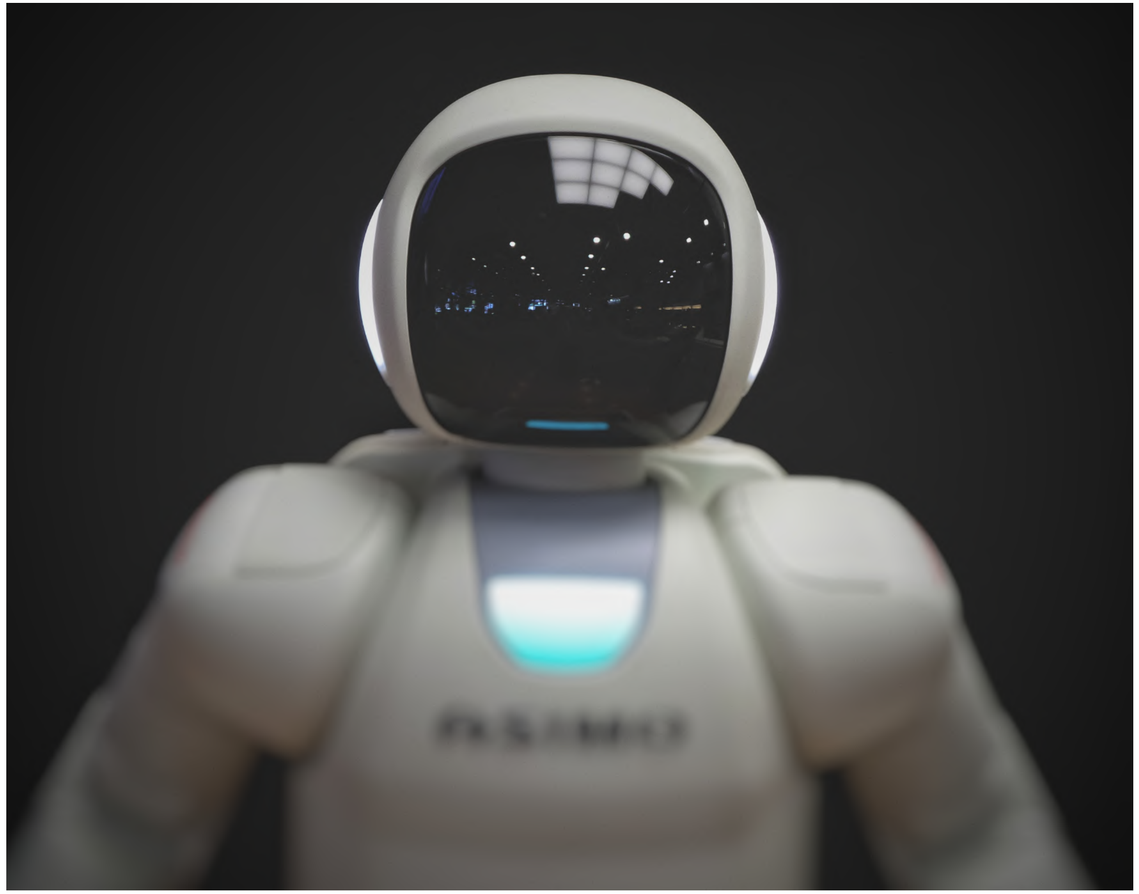
- Backtesting framework - understanding ecosystem effects
- Deep diving into deep black boxes
- Measuring effectiveness of our algorithms offline without disruption of our users' experience



WHAT'S NEXT?

LOOKING AHEAD

- Personalization
- Incorporate content signals
- Memory effects



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