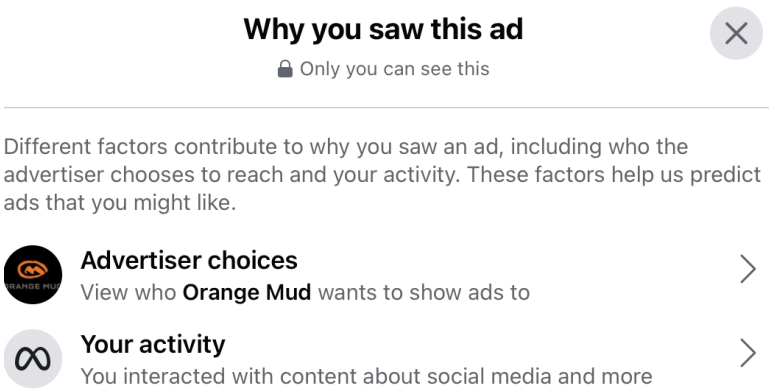
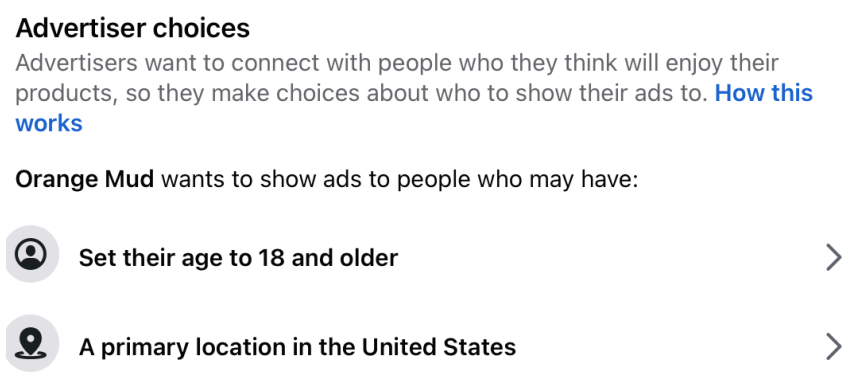
Ad Transparency





Ad Transparency

- Users want to know ad targeting parameters
  - Why is this important?
- Advertiser transparency efforts fall short
  - Why do you think they hide the details?
- Idea: have users detect this collaboratively

Inference Method

- Observe ads being served to an audience
- Correlate observation with user attributes
  - Hypothesis: ad is shown *only* to users who match attributes
- Iterate over pairs of attributes that belong to all users who see ad
  - Evaluate likelihood of seen / not seen sets given targeting formula
- Use expectation-maximization to tune K (ad frequency) parameter

Real-world Experiment

- Run ad experiments with 420 users
  - Sep 2018 to Mar 2019
- Carried out a targeted campaign, narrowed by location & custom audience
  - Custom audience more effective at reaching users
- 45 campaigns reached at least 3 users
- Results:
  - 17 of 29 custom audience guessed correctly
  - 65% correctness for campaigns that reached 10+ users

Simulation

- Create a synthetic audience
  - Using one- and two-attribute marginals
- Generate up to 1M monitored users
- Simulate targeted campaigns, run inference
  - Higher overall accuracy, 86% with 10+ monitored users

Discussion

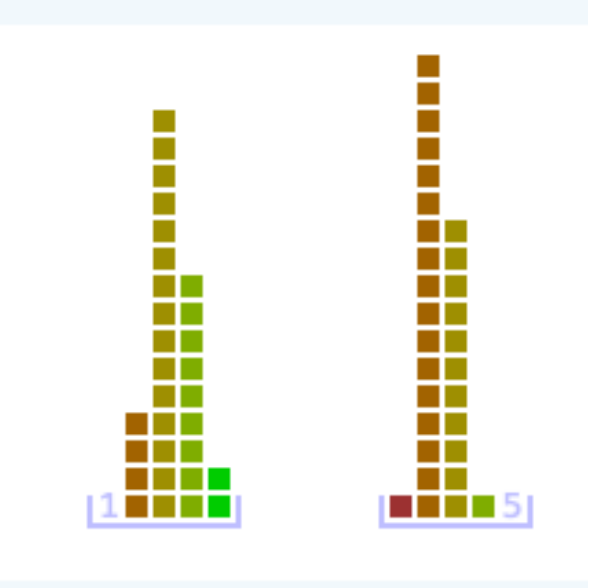
- Is this realistic?
  - Generalizability of small experiment
  - Validity of assumptions (ad model, two-attribute campaigns, …)
  - Privacy issues for users
- Adversarial actions by advertisers
  - Targeting attributes taken from advertiser
- Is the resulting data good enough to be actionable?

Impressions

- Positive
  - Novel approach for transparency
  - Real-world + simulated experiments
  - Transparent and open source
- Negative
  - Assumptions: two-attribute models, Bernoulli model
  - Privacy issues in data collection

Wrap Up

- Other discussion points?
- What did you find surprising?
- Who really liked this paper? Really hated it?



Defining “Broken”

- Ad- and tracker-blocking tools change website functionality
- What kind of “broken” functionality do users notice, how does it affect them, and what do they do about it?