Exploring the Dynamics of Search Advertiser Fraud

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Search Ad Fraud = Deceptive Advertising

Search Ad Fraud ≠ Click Fraud
Fraudster’s Goal: **Make Money**

- **Attract Traffic**
  - Spam
  - SEO
  - Website Compromise
  - Search Ad Fraud

- **Monetize Traffic**
  - Nutraceuticals
  - Phishing
  - Counterfeit Goods
  - Lead Generation
  - Malware

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Our Goal

Provide **unique** view of Search Ad Fraud from **inside** the Bing search ad network

• Current state, **scale** of the fraud

• Bidding/advertising **behavior**

• **Impact** on other advertisers
Dataset

Ads available, shown, and clicked
  Recent past: 2+ years, at least 6-months old

Fraud as defined/identified by Bing
  Algorithmic & manual reports; many manual reviews
What fraud is excluded?

Account compromise
   Insignificant

Borderline-deceptive
   Shrinks as policy evolves

Successful evaders
   Manual reports encourage detection

Bottom Line: omissions don’t change analysis
Ongoing Problem

Millions of clicks / month

O($100m$)/year to Bing

(6 month delay allows fuller analysis)
Many **new accounts** are fraudulent...

...but do not survive very long.
Why are fraudsters stopped so quickly?

Most are loud, but the good fraudsters are hard to separate
Pareto Applies

The graph illustrates the cumulative proportion of clicks and advertisers. It shows that a small percentage of advertisers (1%) account for a significant proportion of clicks (10%).
Bidding Behavior

How do fraudsters behave on the network?
   Do they bid differently than others?

What verticals do they target?
   Has their behavior changed over time?
Brief Diversion: How search ads work

Advertisers bid on keyword **phrases**
  e.g. ’red roses’

**Advertisers choose** how keywords match against query

- **Exact/Phrase** match:  “red rose” / “red rose London”
- **Broad** matching:  “buy flowers”
Brief Diversion: How search ads work

Ads are chosen & ordered by a second-price auction where advertisers pay only when their ad is clicked.

Auction won by expected payout, which is based on bid and past performance.
Bidding Behavior

How do fraudsters behave on the network?
  Do they bid differently than others?

What verticals do they target?
  Has their behavior changed over time?
How do fraudsters behave?

Fraudsters reduce detection surface area by creating fewer ads/keyword bids
How do fraudsters bid?

Fraudsters prefer **broad** matching

Fraudsters **bid the default amount more** than non-fraudulent advertisers.
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Store Hours & Locations. Go To Target.com Online Shopping Now.

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Enroll, View Test Results, Schedule Appts. Pay Bills Online
Impersonation?

Hard to identify—likely will always be a problem
Impact on other advertisers

How often do good advertisers encounter fraud?
How much burden does any individual bear?

What cost is incurred by competing with fraud?
Not just monetary cost, but also opportunity cost.

Competes with fraud =
shown alongside an ad marked as fraud
How often do fraudsters impact others?

Fraudsters rarely compete with nonfraudulent advertisers
Does fraud impact cost?

Fraudulent competition modestly increases cost
Does fraud impact ad position?
Does fraud impact ad position?

Competing with fraud typically costs one ad position
Does fraud impact **click-through rates**?

Fraudulent competition *significantly* reduces the odds of receiving a click.
Takeaways

Fraudsters forced to behave like normal advertisers
- Bing kills loud advertisers
- Fraudsters must be measured to be successful

Competing with fraud has cost, but is rare
- Few advertisers encounter fraud often, but means advertiser won’t receive clicks
- Fraudsters’ mostly competing amongst themselves

Pareto principle applies
- Not just Bing– all likely have few elite fraudsters
- Targeted interventions are effective
Thanks