THE HUMANS VS THE MACHINES
THE DIGITAL UNIVERSE IS HUGE – AND GROWING EXPONENTIALLY
2.5 Exabytes are produced every day - which is equivalent to...

- 90 years of HD video
- 5 million laptops
- 150 million iPhones
- 530 billion songs
HUMAN BRAINS AREN'T EVOLVING QUICKLY ENOUGH
MACHINES ARE KEEPING PACE

1 TRILLION-FOLD INCREASE IN COMPUTING POWER OVER THE LAST 60 YEARS!
ENTER MACHINE LEARNING.

- Using algorithms to find patterns, learn, and predict outcomes
- Ideal for big data

Select Model Inputs
Analyze Input Distributions
Clean & Recode Inputs
Divide Data Into Training & Testing Sets
Explore Machine Learning Data Models
Engineer & Deploy Machine Learning
Evaluate Model Accuracy

▪ Using algorithms to find patterns, learn, and predict outcomes
▪ Ideal for big data
IT'S ALREADY BEING USED
IN AND OUTSIDE
OF MARKETING

DATA SECURITY

SMART CARS

FINANCIAL TRADING

ONLINE SEARCH

FRAUD DETECTION

PERSONAL SECURITY

HEALTHCARE
SHOULD HUMANS LEVERAGE MACHINE LEARNING FOR ONLINE CAMPAIGN OPTIMIZATION?
WE PUT MACHINES TO THE TEST TO FIND OUT.
**THE HUMAN APPROACH**

**Primary research to identify the ideal demographic for product**

**Media bought and deployed based on identified target audience**

**Measure campaign success against KPIs**
THE MACHINE APPROACH: ADVANCING THE HUMAN APPROACH

TRUE[X] LEVERAGES UP/LIFT TO DELIVER IN TARGET BRAND LIFT PREDICTIONS PRIOR TO EXPOSURE

- Demographics
- Geography
- Day Part
- Placement
- Brand Sentiment
METHODOLOGY

TEST GROUP - BRAND AD SHOWN

- Brand Sentiment Poll for Optimization
- Brand Lift Survey to Measure Success

Learning Period
- Human Decision
- 100% of original campaign impressions

Machine Decision
Optimizes towards top 80% of impressions

Human Decision
No change in targeting

CONTROL GROUP - NO AD SHOWN
CAMPAIGN DETAILS

3 LIVE UP/LIFT CAMPAIGNS

TIMING
Each campaign/measurement period was approximately 1 month

SAMPLE SIZE
N=5,750

AD FORMAT
User opt-in
:30 seconds
At least 1 interaction with creative
100% share of screen
HUMAN VS. MACHINE
PUT TO THE TEST
HUMAN WORKED FINE.

IMPACT OF HUMAN DRIVEN CAMPAIGNS - DELTAS (TEST-CONTROL)

**Knowing the Brand**
- Brand Awareness: 4.6%*
- Brand Familiarity: 3.3%*

**Enthusiasm for the Brand**
- Brand Interest: 1.9%
- Brand Preference: 2.4%

**Buying the Brand**
- Purchase Consideration: 0.8%
- Purchase Intent: 0.5%

*Significant difference from control group at p<0.1

Human N=3253, Machine N=4714

The control group was weighted separately to each exposed group to balance distributions of publisher, age, gender, income, and in-market status.
MACHINE WORKED BETTER.

**IMPACT BY CAMPAIGN TYPE - DELTAS (TEST-CONTROL)**

**KNOWING THE BRAND**
- Brand Awareness: 4.6%*
- Brand Familiarity: 3.3%*
- Brand Interest: 1.9%

**ENTHUSIASM FOR THE BRAND**
- Brand Preference: 8.6%*
- Brand Interest: 2.4%

**BUYING THE BRAND**
- Purchase Consideration: 5.7%*
- Purchase Intent: 0.8%*
- Purchase Intent: 0.5%

*Significant difference from control group at p<0.1

Human N=3253, Machine N=4714

The control group was weighted separately to each exposed group to balance distributions of publisher, age, gender, income, and in-market status.
WHEN THE MACHINE GETS TO KNOW THE CONSUMER, THE CONSUMER GETS TO KNOW THE BRAND

IMPACT ON ‘KNOWING THE BRAND’ - DELTAS (TEST-CONTROL)

BRAND FAMILIARITY

<table>
<thead>
<tr>
<th>Brand</th>
<th>Human</th>
<th>Machine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brand 1</td>
<td>4.4%</td>
<td>5.6%*</td>
</tr>
<tr>
<td>Brand 2</td>
<td>4.2%</td>
<td></td>
</tr>
<tr>
<td>Brand 3</td>
<td>1.2%</td>
<td>6.4%*</td>
</tr>
</tbody>
</table>

*Significant difference from control group at p=0.1

Brand 1: Human N=1041, Machine N=1140; Brand 2: Human N=1106, Machine N=1787; Brand 3: Human N=1106, Machine N=1787
THE MACHINE REACHES THE MOST RECEPTIVE AUDIENCE

IMPACT ON ‘ENTHUSIASM FOR THE BRAND’ - DELTAS (TEST-CONTROL)

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<th>Human</th>
<th>Machine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brand 1</td>
<td>1%</td>
<td>6.3%*</td>
</tr>
<tr>
<td>Brand 2</td>
<td>3.7%</td>
<td>10.6%*</td>
</tr>
<tr>
<td>Brand 3</td>
<td>0.7%</td>
<td>9.0%*</td>
</tr>
</tbody>
</table>

*Significant difference from control group at p<0.1
Brand 1: Human N=1041, Machine N=1140; Brand 2: Human N=1106, Machine N=1787; Brand 3: Human N=1106, Machine N=1787
AND, ULTIMATELY PRIMES CONSUMERS TO MAKE A PURCHASE

IMPACT ON ‘BUYING THE BRAND’ - DELTAS (TEST-CONTROL)

**PURCHASE CONSIDERATION**

<table>
<thead>
<tr>
<th>Brand 1</th>
<th>Brand 2</th>
<th>Brand 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>-1.2%</td>
<td>0.7</td>
<td>1.8%</td>
</tr>
<tr>
<td>8.7%*</td>
<td>7.6%*</td>
<td></td>
</tr>
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</table>

*Significant difference from control group at p=0.1
Brand 1: Human N=1041, Machine N=1140; Brand 2: Human N=1106, Machine N=1787; Brand 3: Human N=1106, Machine N=1787
GREATER IMPACT OCCURRED DESPITE LOWER FREQUENCY

AVERAGE FREQUENCY

THE HUMAN

4.13
Ad Exposures

THE MACHINE

3.08
Ad Exposures
INITIAL EXPOSURES PRODUCE SIMILAR IMPACT ON FAMILIARITY, BUT MACHINE WAS MORE PERSUASIVE

IMPACT AT FREQUENCY <=2 - DELTAS (TEST-CONTROL)

**BRAND FAMILIARITY**
- Human: 9.8%*
- Machine: 8.7%*

**PURCHASE CONSIDERATION**
- Human: -0.9%
- Machine: 7.3%*

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*Significant difference from control group at p=0.1
Human N=2594, Machine N=3648
MATURING AI
MACHINES LEARN OVER TIME
MACHINE BECAME SMARTER WITH MORE DATA

IMPACT ON BRAND INTEREST ACROSS TIME - DELTAS (TEST-CONTROL)

Early: Human N=918, Machine N=1558; Middle: Human N=1255, Machine N=1432; Late: Human N=1080, Machine N=1724

*Significant difference from control group at p=0.1
MOMENT BY MOMENT OPTIMIZATION NOT SEEN WITH HUMAN PLANNED CAMPAIGNS

IMPACT ON BRAND INTEREST ACROSS TIME - DELTAS (TEST-CONTROL)

*Significant difference from control group at p=0.1

Early: Human N=918, Machine N=1558; Middle: Human N=1255, Machine N=1432; Late: Human N=1080, Machine N=1724
SPEED OF DIGITAL ADVERTISING

UNDERSTANDING HUMAN LIMITATIONS
CAN WE SIMPLY MIMIC THE MACHINE’S LEARNING?
BOTH REACHED THE SAME OF THOSE IN-MARKET

IN-MARKET FOR ADVERTISED PRODUCT BY CAMPAIGN TYPE

The Human

The Machine

Within 6 months
Within 1 year
Within 2 years
MACHINE OUTPERFORMED AMONG THOSE IN-MARKET FOR THE ADVERTISED PRODUCT

IMPACT BY CAMPAIGN TYPE AMONG IN-MARKET FOR PRODUCT - DELTAS (TEST-CONTROL)

**BRAND FAMILIARITY**
- The Human: 1.5%
- The Machine: 5.9%*

**BRAND INTEREST**
- The Human: -0.6%
- The Machine: 9.4%*

**PURCHASE CONSIDERATION**
- The Human: -2.2%
- The Machine: 6.0%*

*Significant difference from control group at p=0.1

Human N=1445, Machine N=2205

The Machine didn’t simply find more people in-market for the product. There’s something more.
IT’S THE VARIABLE HUMANS CAN’T EASILY PINPOINT.

IT’S ONLY REVEALED BY PATTERNS IN BIG DATA. PATTERNS THE MACHINE CAN FIND.
THE HIDDEN VARIABLE IS...

( AD RECEPTIVITY )
SURVEY TECHNIQUES

NEXT GENERATION BRAND LIFT
LONG SURVEYS ARE NOT FOR EVERYONE

HIGH DROPOUT RATES

BURdensome consumer experiences

Fatigue leading to poor data quality

Missed opportunities with hard to reach audiences
WHAT’S THE ALTERNATIVE?

TRADITIONAL BRAND LIFT SURVEYS

Survey Style
Matrix question for each metric in the funnel:

- Brand Awareness
- Brand Familiarity
- Brand Interest

- Purchase Consideration
- Brand Preference
- Purchase Intent

BRAND FUNNEL IMPACT (BFI) SURVEYS

Survey Style
Asks a single question to shorten the survey experience:

Which of the following best describes how you feel about [brand name]?

- Never heard of
- Heard of
- Know about
- Would consider
- Prefer it
- Likely to [action]
THE SHORTER, THE SWEETER

IMPACT OF SURVEY METHOD | PERCENT WHO COMPLETED SURVEY

SURVEY COMPLETION

Traditional Brand Lift Survey
- 67% Completed
- 33% Did Not

Brand Funnel Impact (BFI) Survey
- 93% Completed
- 7% Did Not

Traditional N=451, BFI N=473
KEY FINDINGS
WE’VE COME A LONG WAY.

EXPLORE USING MACHINE LEARNING TO BROADEN YOUR TARGET AND AVOID MISSING OUT ON CONSUMERS WHO MAY BE RECEPTIVE TO YOUR AD.
Leveraging machine learning for ad targeting allows humans to push beyond the confines of standard targeting techniques.

Machine learning can help identify and target the most receptive consumers, not just demographics. This translates into bigger impact on brand KPIs.

Consumer feedback fuels important marketing decisions. Marketers should aim to improve the consumer survey experience, by finding the right balance between survey length and data collection needs.