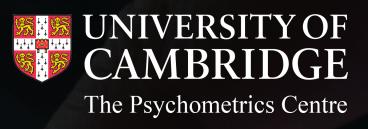
Vesselin Popov Business Development Director



# Psychological prediction and targeting for online advertisers

IAC Prague 2018

To harness methodologies from psychometrics and big data analytics in predicting and understanding human behaviour in the online environment

OBJECTIVE 2 OF 7



# UNIVERSITY OF CAMBRIDGE

The Psychometrics Centre

# Personalised advertising principles

**Control** – no predictions without consent

Transparency – share insight with customer

**Benefit - improve customer experience** 

Relevance – data and result are clearly connected

#### Ich habe nur gezeigt, dass es die Bombe

Digital, Culture, Media and Sport Committee Tuesday 27 February 2018 Meeting started at 10.50am, ended 1.04pm



Robert Mercer: the big data billionaire waging war on mainstream media

Ted Cruz using firm that harvested data

on millions of unwitting Facebook users

Exclusive: Documents reveal donor-funded US startup embedded in

With links to Donald Trump, Steve Bannon and Nigel Farage, the rightwing US

#### e heart of a multimillion-dollar propaganda network

#### The Rise of the Weaponized Al **Propaganda Machine**

There's a new automated propaganda machine driving global politics. How it works and what it will mean for the future of



## Trump Data Gurus Leave Long Trail of Subterfuge, Dubious Dealing

### Leave.EU used 'creepy' Facebook profiling technology to win Brexit campaign — and now the data watchdog is investigating

lake Kanter. Business Insider UK Mar. 1, 2017, 12:14 PM 6 1,454

Revealed: Tory 'dark' ads targeted 7 voters' Facebook feeds in Welsh marginal seat

Unregulated practice discovered after posts attacking Jeremy Corbyn drown out campaign aimed at boosting youth vote

profiles on potential voters



Leave.EU under investigation over EU referendum spending



assessing p ≀ate data



The great British Brexit robbery: how our democracy was hijacked

Did Cambridge Analytica influence the Brexit vote and the US election?

gital firm's involvement in Brexis

h inquiry into misuse s's company is at the centre of a growing controversy over the use of ata during elections. But is there any evidence that what it does works?

> The Data That Turned the World **Upside Down**





In the run up to the US Election, 120 fake Russian-backed accounts directly targeted 80,000 posts to 29 million Americans using Facebook's tools.

Facebook's testimony estimates that the content eventually reached 126 million Americans e.g. through sharing.

One fake account reached 10 million people with 3,000 divisive ads for just \$100,000.





## **INFINITE**

MEDIA IMPRESSIONS

Impossible to quantify.

Journalists are still covering their campaign everyday.



# 760 MILLION CLICKTHROUGHS

That means every adult in America could have clicked on their stories. Three times.



288
MILLION TWITTER
IMPRESSIONS

Enough to reach 90% of the Twitter community.



FEDERAL INDICTMENTS

and counting...

RUSSIA-FRIENDLY PRESIDENT

Isn't it nice to finally get along?

ource:

Media Impressions - Google Search Total Clickfroughs - Stanford Study Twitter Impressions - NYTimes Indictments - Washington Past Friendship - CNBC

FOR YOUR CONSIDERATION:

PROJECT MEDDLE

To positively address issues of privacy, ethics and diversity in our field in order to protect human rights and advance the cause of fairness and equality in society

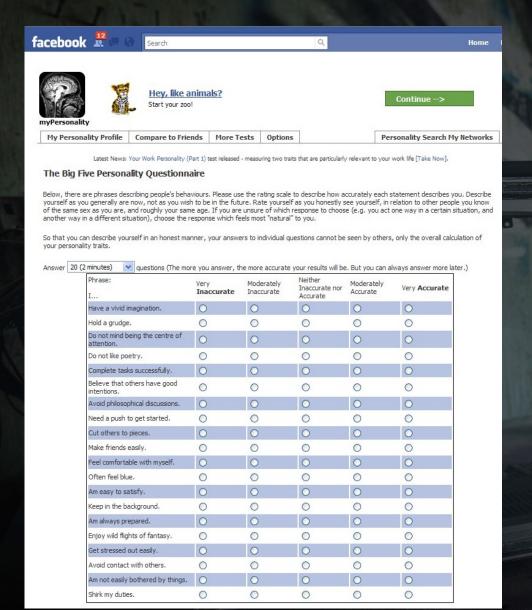
**OBJECTIVE 5 OF 7** 



UNIVERSITY OF CAMBRIDGE

The Psychometrics Centre

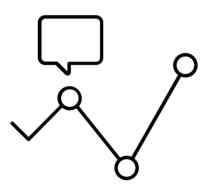
## 2007-2012



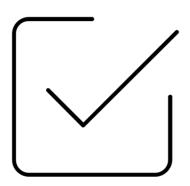
100 question IPIP version of NEO-PI-R Traits	Delay Discounting
336 question IPIP version of NEO-PI-R Facets	Body Consciousness
Satisfaction with life scale	Moral Foundations
Rust's vocational personality	MUSIC Personality
Sensational interests questionnaire	Empathy Quotient Scale
Self-Monitoring	Barratt Impulsivity Scale
Pennebaker Inventory of Limbic Languidness (PILL)	Relationship Scales Questionnaire
Job Self-Efficacy Scale	My memories of upbringing
Forms of self- criticizing/attacking and self- reassurance scale (FSCS)	Centre for Epidemiological Study Depression Scale
Schwartz's Values Survey	Passion Towards Work Scale
Pregnancy Explorer	Thing-Person Orientation
Volunteer Personality Scale	IQ test on myIQ



6 million volunteers' psych and social media profiles



30 validated psychometric tests



All data collected through opt-in

# myPersonality database



Data shared with 80+ Universities worldwide



Honest feedback was the only incentive



45 peer-reviewed articles since 2011



**BIG5** Personality



Intelligence



Life Satisfaction

# Predictions from social media



**Political Views** 



**Religious Views** 



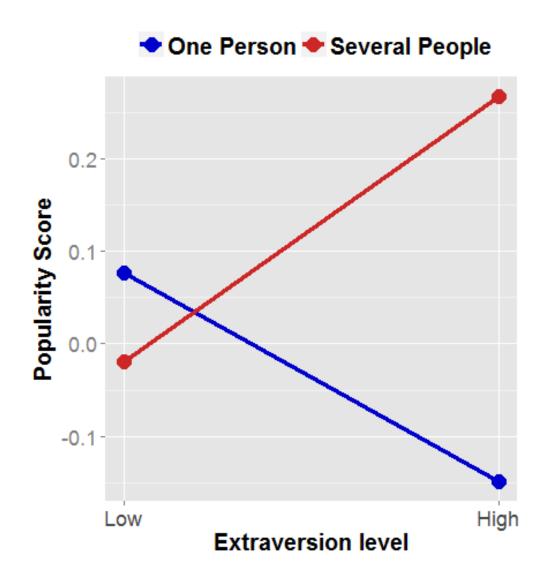
Financial Risk

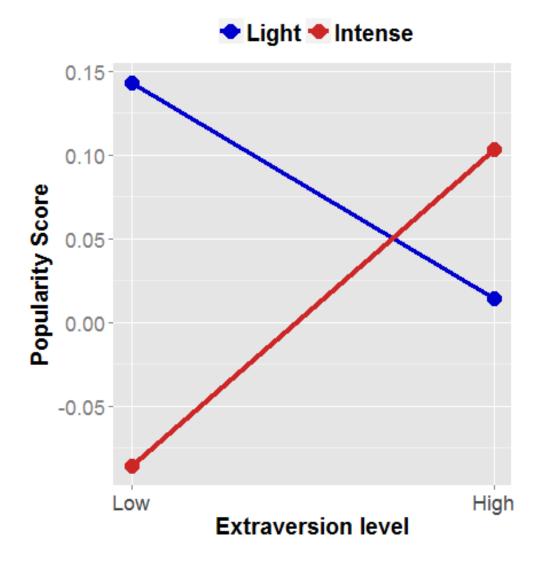
+ Use of addictive substances, parents' relationship status, profession, sexuality, ethnicity, gender, age and more

# Psycholinguistic Tailoring



# Image optimisation





## 45 peer-reviewed publications using our data since 2011

*March 2013* 

Proceedings of the National Academy of Sciences of the United States of America

PNAS

CURRENT ISSUE // ARCHIVE // NEWS & MULTIMEDIA // AUTHORS // ABOUT COLLECTED ARTICLES // BROWSE BY TOPIC // EARLY EDITION // FRONT MATTER

↑ > Current Issue > vol. 110 no. 15 > Michal Kosinski, 5802–5805, doi: 10.1073/pnas.1218772110

This Issue



April 9, 2013 vol. 110 no. 15 Masthead (PDF) Table of Contents

Private traits and attributes are predictable from digital records of human behavior

Michal Kosinski<sup>a,1</sup>, David Stillwell<sup>a</sup>, and Thore Graepel<sup>b</sup>

January 2015

October 2017

Proceedings of the National Academy of Sciences of the United States of America

PNAS

CURRENT ISSUE // ARCHIVE // NEWS & MULTIMEDIA // AUTHORS // ABOUT COLLECTED ARTICLES // BROWSE BY TOPIC // EARLY EDITION // FRONT MATTER

↑ > Current Issue > vol. 112 no. 4 > Wu Youyou, 1036–1040, doi: 10.1073/pnas.1418680112

Computer-based personality judgments are more accurate than those made by humans

Wu Youyou<sup>a,1,2</sup>, Michal Kosinski<sup>b,1</sup>, and David Stillwell<sup>a</sup>

This Issue



January 27, 2015 vol. 112 no. 4 Masthead (PDF) Table of Content

Institution: Cambridge Univers

Proceedings of the National Academy of Sciences of the United States of America

**PNAS** 

CURRENT ISSUE // ARCHIVE // NEWS & MULTIMEDIA // AUTHORS // ABOUT | COLLECTED ARTICLES // BROWSE BY TOPIC // EARLY EDITION // FRONT MATTER

♠ > Current Issue > vol. 114 no. 48 > S. C. Matz, 12714–12719, doi: 10.1073/pnas.1710966114

Psychological targeting as an effective approach to digital mass persuasion

S. C. Matz<sup>a,1</sup>, M. Kosinski<sup>b,2</sup>, G. Nave<sup>c</sup>, and D. J. Stillwell<sup>d,2</sup>

This Issue



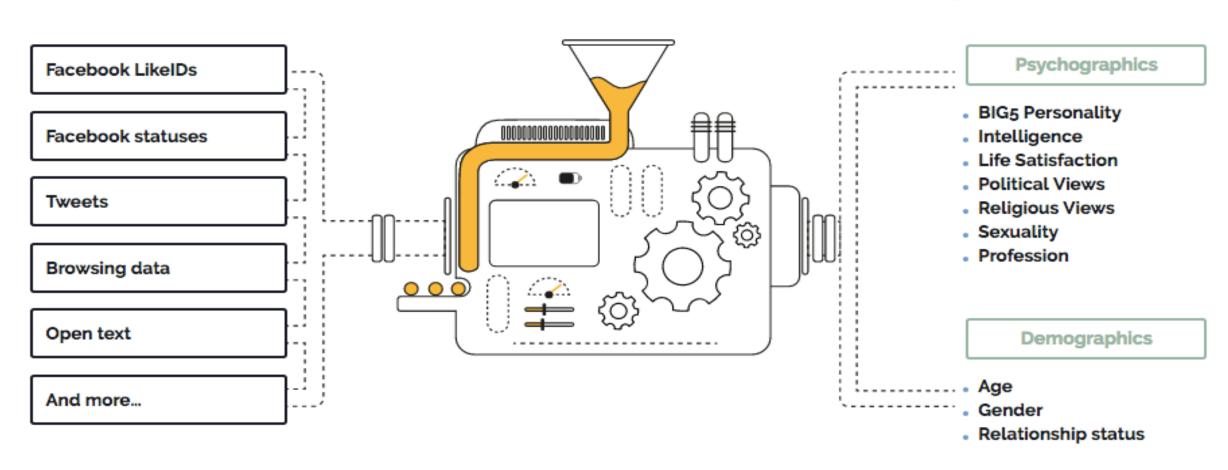
November 28, 2017 vol. 114 no. 48 Masthead (PDF) Table of Contents

# Try it on your own data applymagicsauce.com

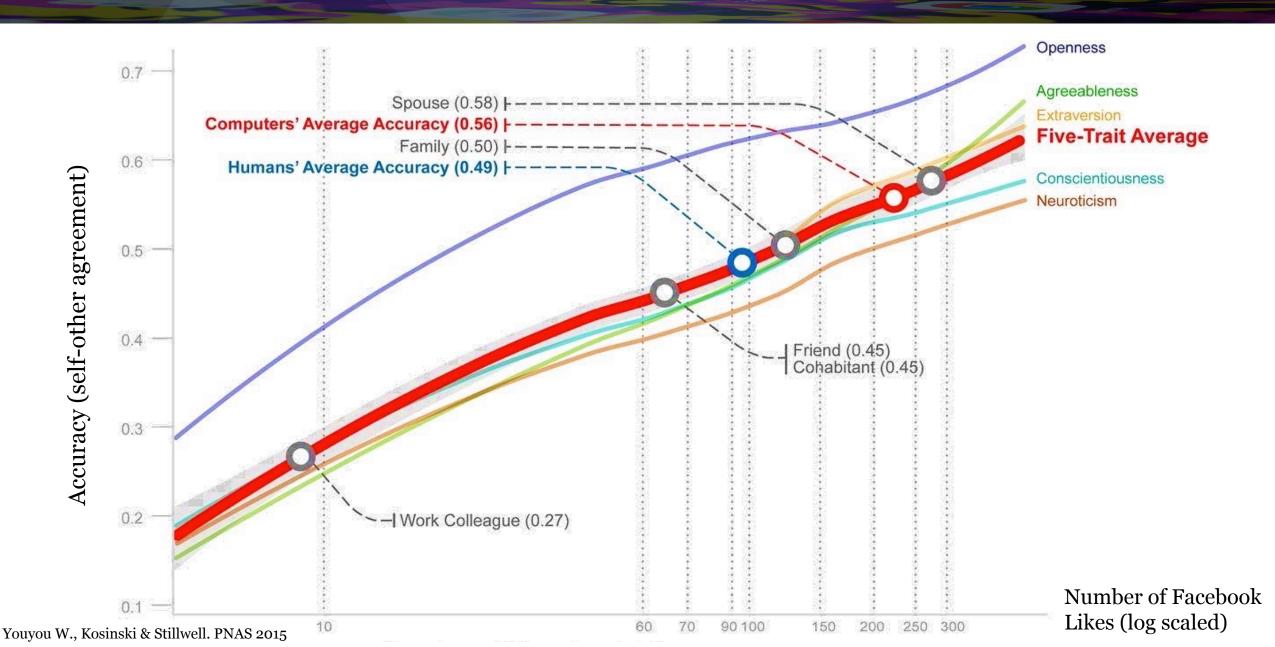
Individual

profiles

# Digital footprints



# Computers assess personality better than we do







66% of people would rather see personalised ads, assuming they have to see ads of some kind

# Testing personalised ad variants

**High Extraversion** 

**High Conscientiousness** 



"Summer's here, so it's time for fun times and good vibes. With more than 300 hotels.....those good times are closer than you might think. So, what are you waiting for? Press play on summer!"



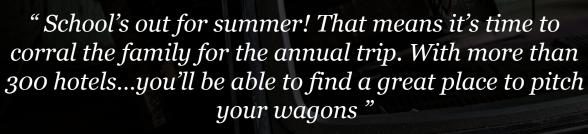
"Summer? Check! Itinerary? Check! Hotel? Hilton! With more than 300...we've got you covered. Now get packing!"

CTR +1750% / SOCIAL ENGAGEMENT +272%

# Testing personalised ad variants

**High Agreeableness** 







"Don't just feel the sun's embrace this summer. Take some time out for you and your partner. With more than 300 hotels...you're bound to find a special slice of happiness at a price you can smile at"

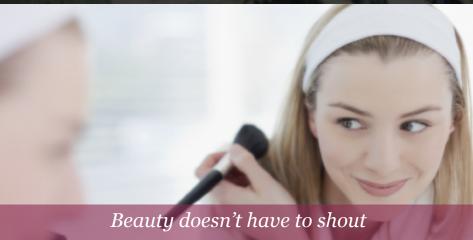
CTR +1750% / SOCIAL ENGAGEMENT +272%

# We expect matching conditions to perform better

#### Target Group

**Introverts** 

**Extraverts** 







**MISMATCH** 

MISMATCH

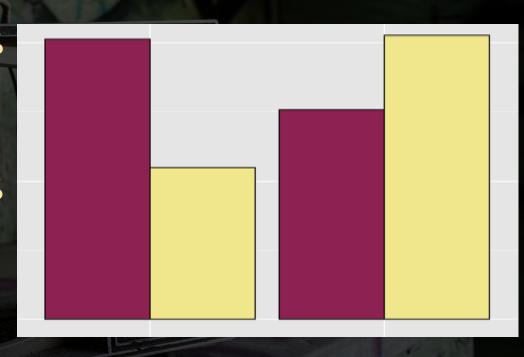
**MATCH** 

# Personality-matched content is twice as profitable

#### **Ad Variants:**



#### RETURN ON INVESTMENT (%)



Introverts Ex

**Extraverts** 

Matz, Kosinski, Nave and Stillwell. PNAS 2017

# Changing landscape

## **Platforms**

- 3 month expiry period on data access for FB apps
- No more FB targeting based on third party data
- FB consent certification tool for Custom Audiences

## Regulation

- GDPR reverses consent presumption + requires auditability
- Greater scrutiny of data-driven advertising by watchdogs
- E-Privacy Directive, Honest Ads Act, etc. may signal a trend

### **Attitudes**

- Brands wary of distinction between personal and personalised
- 20-30% FB users will reduce usage because of CA scandal
- #DeleteFacebook movement strong but unlikely to impact reach

By clicking Create Account, you agree to our <u>Terms</u> and confirm that you have read our <u>Data Policy</u>, including our <u>Cookie Use Policy</u>. You may receive SMS message notifications from Facebook and can opt out at any time.

**Create Account** 









# DATA LEAKAGE IN ONLINE ADVERTISING This is the current process of real-time bidding that is used in online behavioural advertising.

Channel of data leakage

Personally identifiable information

Legend





PageFair



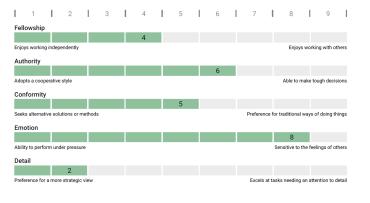
### Control

## **Transparency**

## Benefit

## Relevance

## **DCUWCY**



















WikiLeakS Leaks News About Partners

MaddeningWhispers - Software components that provide beaconing and remote access to a Vanguard device

sontaran - VOIP

Custom Embedded System Implants

YarnBall - Covert USB storage

Weeping Angel (Extending) Engineering Notes - Samsung F Series (2013 Model) SmartTV Implant

HarpyEagle - Apple Airport Extreme and Time Capsule Implant

DerStarke - Apple EFI/UEFI Boot Implant Hardware-based

Persistence QuarkMatter - Apple EFI/UEFI Boot Implant

Local User-to-Root

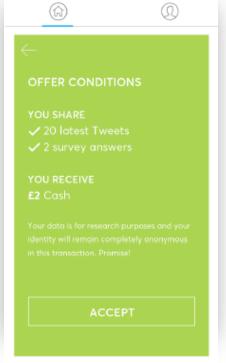
Exploit

BaldEagle - Exploits a vulnerability within the Hardware Abstraction Layer (HAL) daemon











## Control Transparency

## Benefit

## Relevance





WikiLeaks Leaks News About Partners

MaddeningWhispers - Software components that provide beaconing and remote access to a Vanguard device

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Local User-to-Root

Exploit

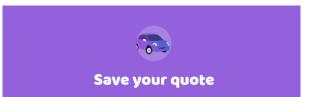
BaldEagle - Exploits a vulnerability within the Hardware Abstraction Layer (HAL) daemon



#### FOR NEW DRIVERS WHO ARE 17-24 YEARS OLD

the average annual premium for a fully comprehensive policy is





Just connect with Facebook to create an account and store your quote details securely. No fiddly passwords - get back here any time, on any device, with one click

You and your data stay private



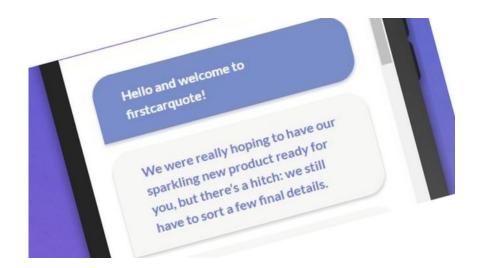
I have read and agreed to the Conditions of Use, assumptions and the Privacy Policy.



Facebook forces Admiral to pull plan to price car insurance based on posts

Insurer withdraws initiative with hours to go as privacy campaigners criticise 'intrusive' attempt to analyse users' data

Connect your Facebook and Twitter profiles using the log in buttons below to discover what your data says about you. Your use of this demo is anonymous, we will never post on your wall and the results of your prediction will not be stored.







Connect with Facebook

#### **Twitter Psychology**

Discover what your Tweets say about you

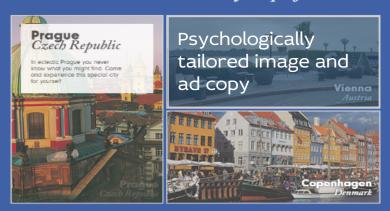
Connect with Twitter

Once you have logged in to Facebook and/or Twitter, click below to see your profile.

Make Prediction



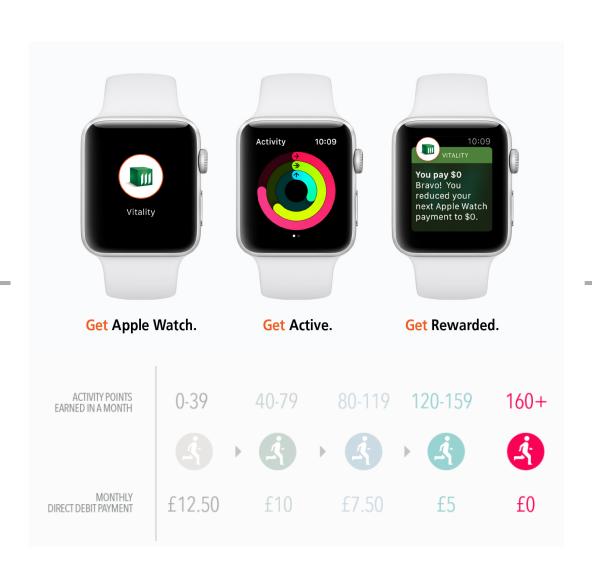
#### The destinations that match your profile are...





### **Privacy**





### Money Health Face valid





# What about your next project?



