

Predicting Psychology from Social Data



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Facebook app launched in 2007



Users could take real psychometric assessments and get feedback for free

6 million people opted in to submit their data

High quality information:

- Records of actual behaviour
- Honest, open, motivated respondents
- Quality better than in the lab

facebook 12 Search Home

[Hey, like animals?](#)
Start your zoo!

[Continue -->](#)

[My Personality Profile](#) [Compare to Friends](#) [More Tests](#) [Options](#) [Personality Search My Networks](#)

Latest News: Your Work Personality (Part 1) test released - measuring two traits that are particularly relevant to your work life [Take Now].

The Big Five Personality Questionnaire

Below, there are phrases describing people's behaviours. Please use the rating scale to describe how accurately each statement describes you. Describe yourself as you generally are now, not as you wish to be in the future. Rate yourself as you honestly see yourself, in relation to other people you know of the same sex as you are, and roughly your same age. If you are unsure of which response to choose (e.g. you act one way in a certain situation, and another way in a different situation), choose the response which feels most "natural" to you.

So that you can describe yourself in an honest manner, your answers to individual questions cannot be seen by others, only the overall calculation of your personality traits.

Answer 20 (2 minutes) questions (The more you answer, the more accurate your results will be. But you can always answer more later.)

Phrase:	Very Inaccurate	Moderately Inaccurate	Neither Inaccurate nor Accurate	Moderately Accurate	Very Accurate
I... Have a vivid imagination.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hold a grudge.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do not mind being the centre of attention.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do not like poetry.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Complete tasks successfully.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Believe that others have good intentions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Avoid philosophical discussions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Need a push to get started.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cut others to pieces.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Make friends easily.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Feel comfortable with myself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Often feel blue.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Am easy to satisfy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Keep in the background.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Am always prepared.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Enjoy wild flights of fantasy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Get stressed out easily.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Avoid contact with others.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Am not easily bothered by things.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Shirk my duties.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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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 (EMBU)
Forms of self-criticizing/attacking and self-reassurance scale (FSCS)	Centre for Epidemiological Study Depression Scale (CES-D)
Schwartz's Values Survey	Passion Towards Work Scale
Pregnancy Explorer	Thing-Person Orientation
Volunteer Personality Scale	IQ test on myIQ

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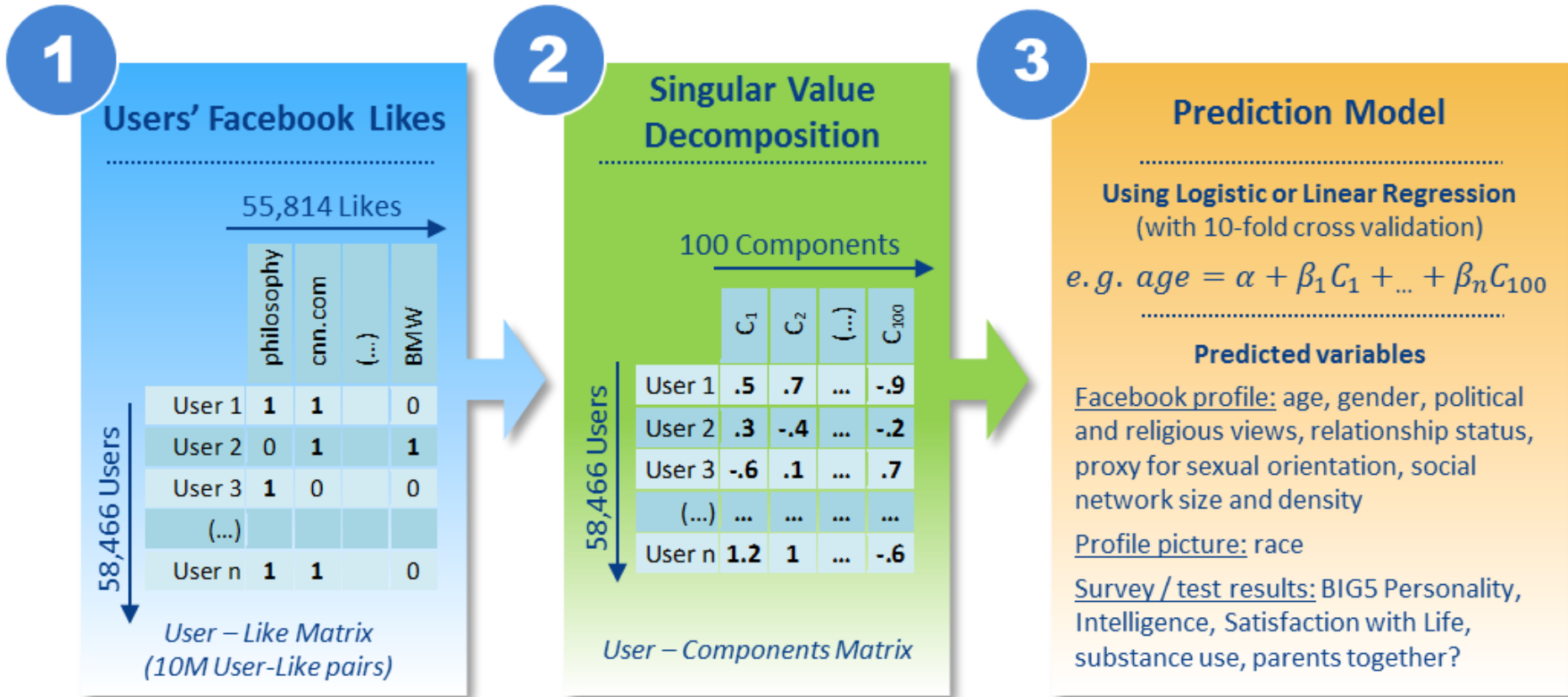
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Gender	Education (school/degree)
Date of Birth	Relationship status
Religion	Likes <ul style="list-style-type: none">➤ Books➤ Movies➤ TV Shows➤ Music and Last.fm Data <ul style="list-style-type: none">➤ Activities
Political views	Sexuality
Geographical location <ul style="list-style-type: none">➤ Country➤ State➤ City	Family
Work (company/position)	Photo tags
Wall posts	Status updates

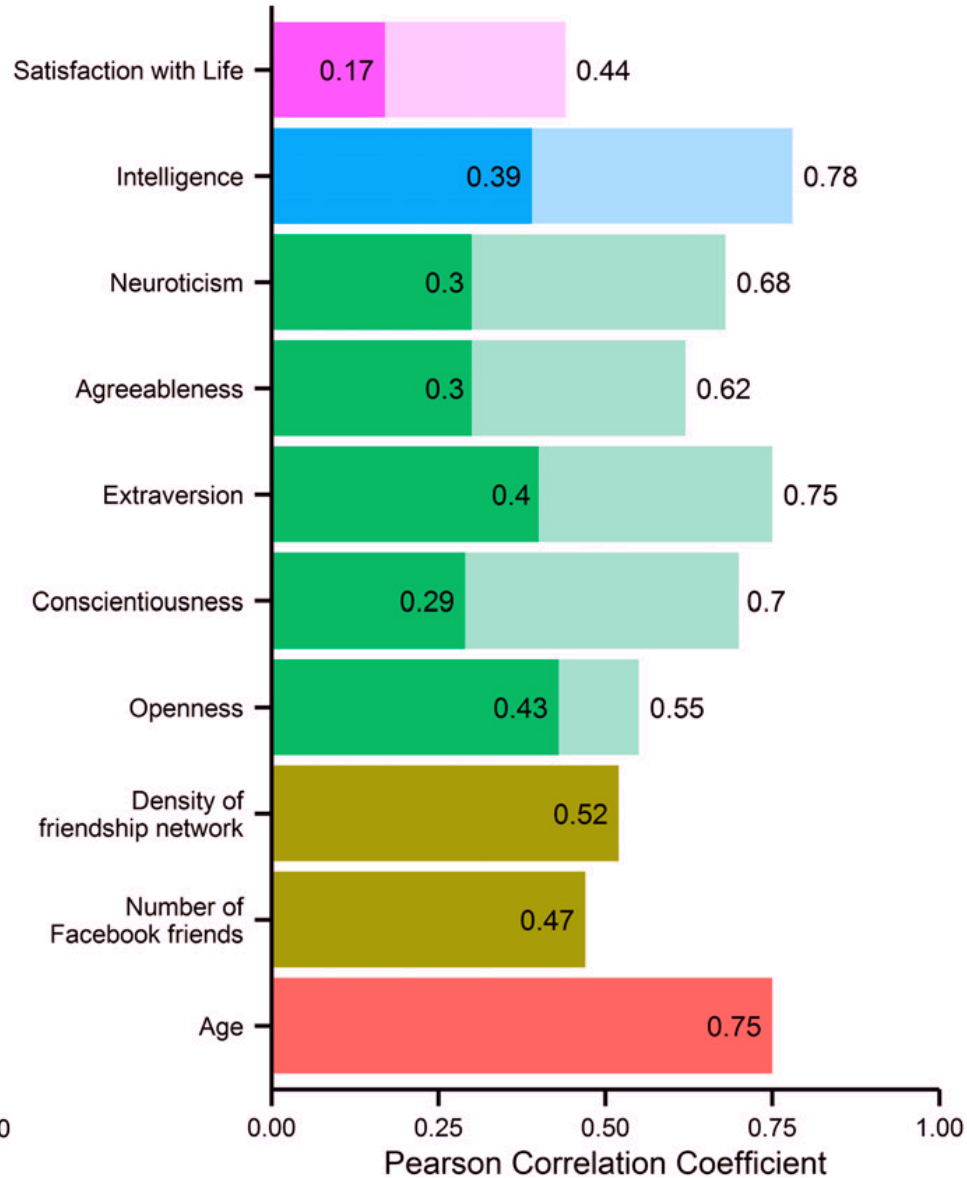
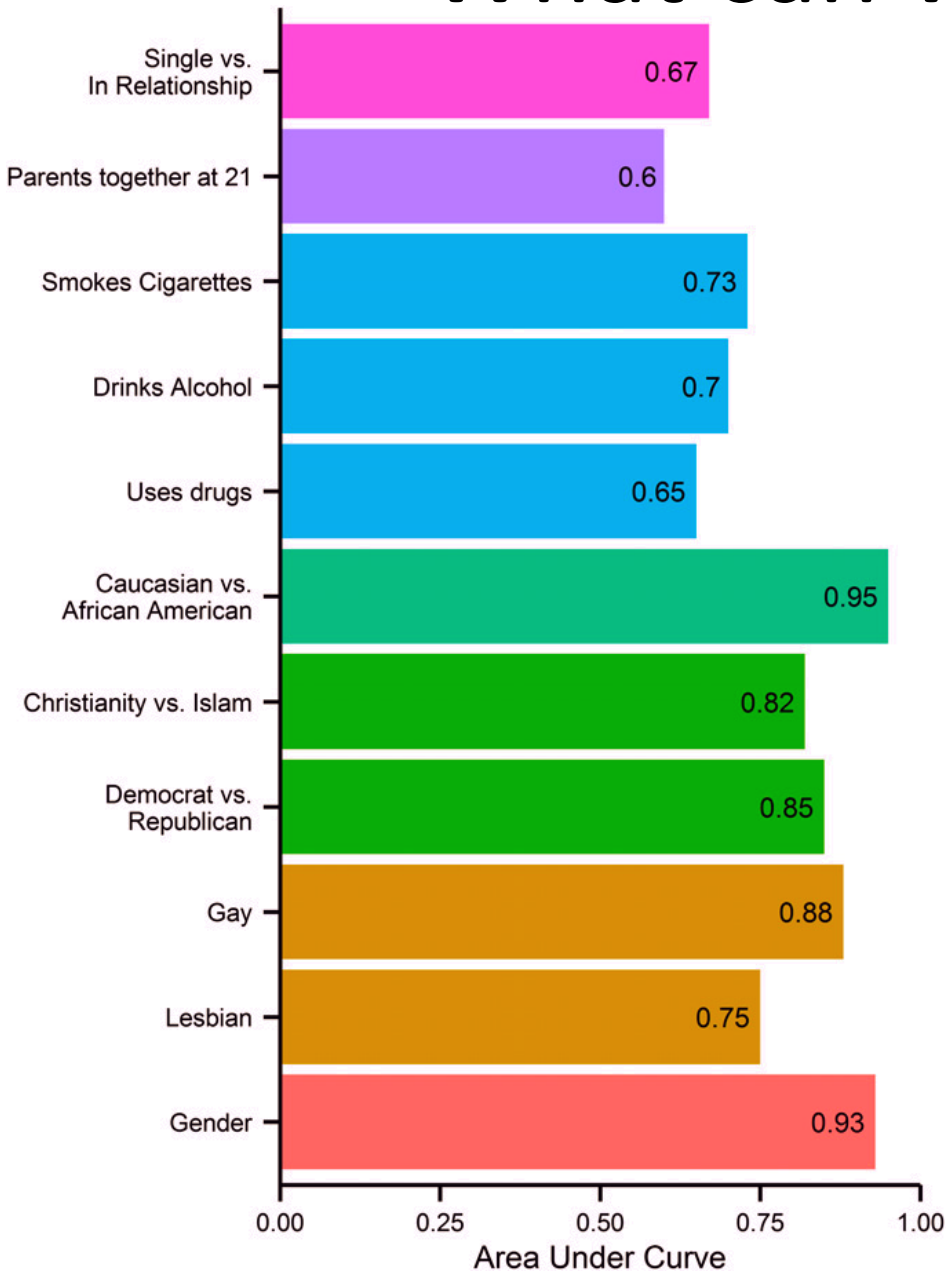
Predicting Personality & Attributes from Facebook Likes

Kosinski, Graepel & Stillwell (2013) *PNAS*



What can we predict?

Kosinski, Graepel & Stillwell (2013)



IQ

High



The Godfather



Mozart



Thunderstorms



The Daily Show



To Kill a Mockingbird



Lord of the Rings



Science

Low



Jason Aldean



Tyler Perry



Sephora



Chiq



Bret Michaels



Harley-Davidson



Bebe

Agreeableness

High



Compassion
International



Jon Foreman



Pornography Harms



The Book Of Mormon



Circles Of Prayer



Christianity



Marianne Williamson

Low



I Hate Everyone



I Hate You



I Hate Police



Friedrich Nietzsche



Atheism / Satanism



Prada



Sun Tzu

Predicting Personality from Facebook Likes

Youyou, Kosinski & Stillwell (2015) *PNAS*

PARTICIPANTS' PERSONALITY

Measured using 100-item IPIP Five-Factor Model questionnaire (for 70,520 participants)



	Openness	Conscientiousness	Extraversion	Agreeableness	Neuroticism
90% of participants					
User 1	2.1	4.2	1.9	5.0	3.2
User 2	1.9	2.1	3.2	4.2	4.3
User 3	...	...	...	...	...
(...)
10%					
User X	...	...	...	...	...

PARTICIPANTS' LIKES

Obtained from Facebook profiles



	Running	Ford Explorer	Barack Obama	(...)	Dancing
90% of participants					
User 1	1	1	0	-	0
User 2	0	1	1	-	1
User 3	1	0	1	-	1
(...)
10%					
User X	...	...	...	...	...

LINEAR REGRESSION MODELS

A regression formula with a coefficient for each Like is generated for each of the five personality traits
e.g. $Openness = \alpha + \beta_1 * running + \beta_2 * Obama + e$



	Running	Ford Explorer	Barack Obama	(...)	Dancing
Openness	.3	.2	0	-	.2
Conscientiousness	.7	.1	.6	-	.7
Extraversion	.1	0	.1	-	.2
Agreeableness	...	...	...	...	...
Neuroticism	...	...	...	...	...

COMPUTERS' JUDGMENTS

Made using participants' Likes



	Openness	Conscientiousness	Extraversion	Agreeableness	Neuroticism
90% of participants					
User 1	2.1	4.2	1.9	5.0	3.2
User 2	1.9	2.1	3.2	4.2	4.3
User 3	...	...	...	...	...
(...)
10%					
User X	1.9	2.1	3.2	4.2	4.3

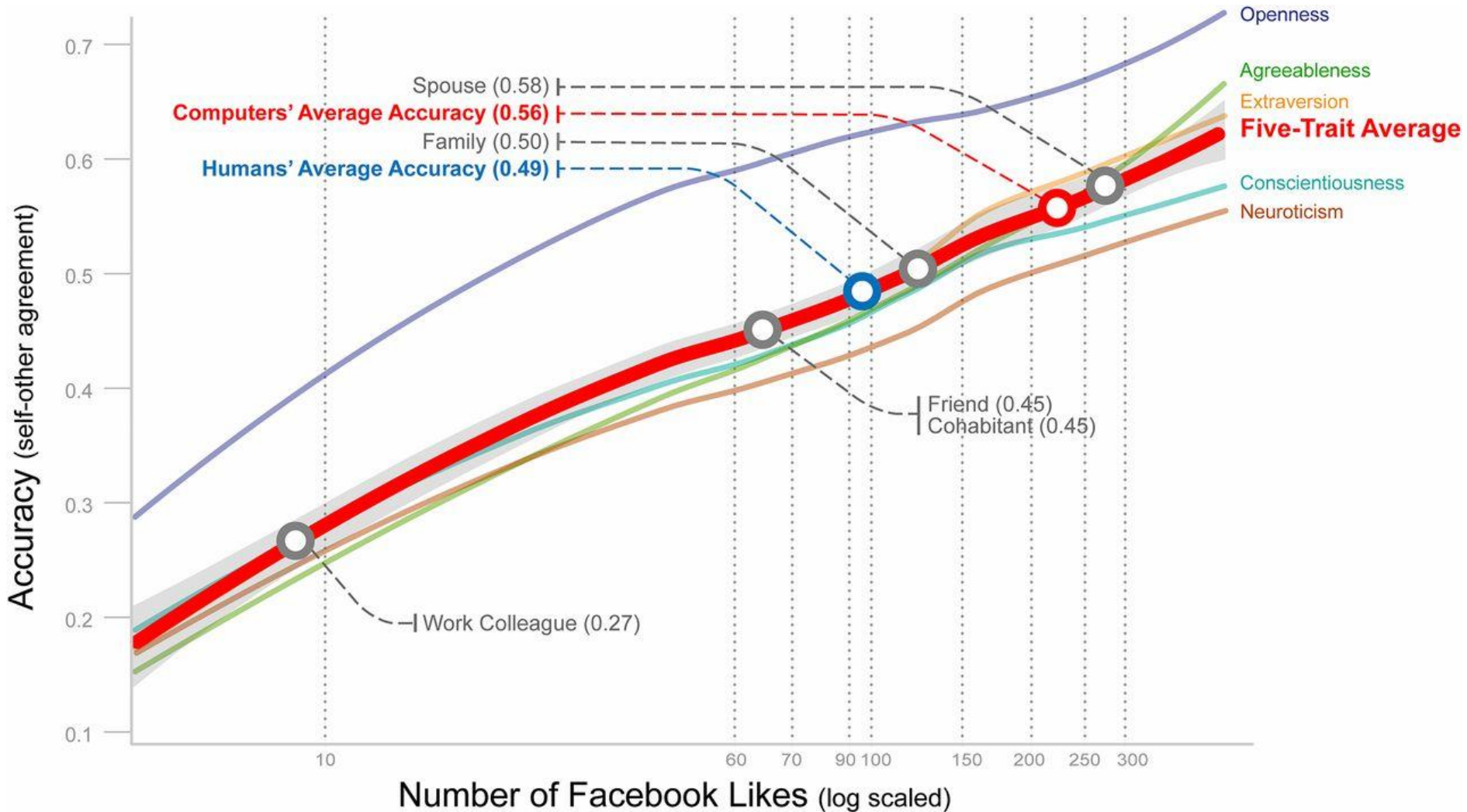
1 Take personality scores and Likes of 90% of the participants and build linear regression models for the five personality traits using LASSO variable selection

2 Take the Likes of the remaining 10% of the participants and use the linear regression models to predict scores for the five personality traits

Repeat 10 times to make judgments for all participants



How accurately can we predict?



Apply Magic Sauce

PredictionAPI

Apply Magic Sauce translates individuals' digital footprints into detailed psychological profiles.

For research

For business

For you



Digital footprints

Facebook LikeIDs >

Facebook statuses >

Tweets >

Browsing data >

Open text >

And more.... >



Individual profiles

Psychographics

Demographics

- BIG5 Personality
- Intelligence
- Life Satisfaction
- Political Views
- Religious Views
- Sexuality
- Profession

- Age
- Gender
- Relationship status

Our trait prediction engine is based on actual psychological data and the corresponding social media profiles of over 6 million individuals.

We publish anonymised samples of our data online, resulting in 33 peer-reviewed publications since 2011.

Not to mention global research collaboration among 80 academic institutions.

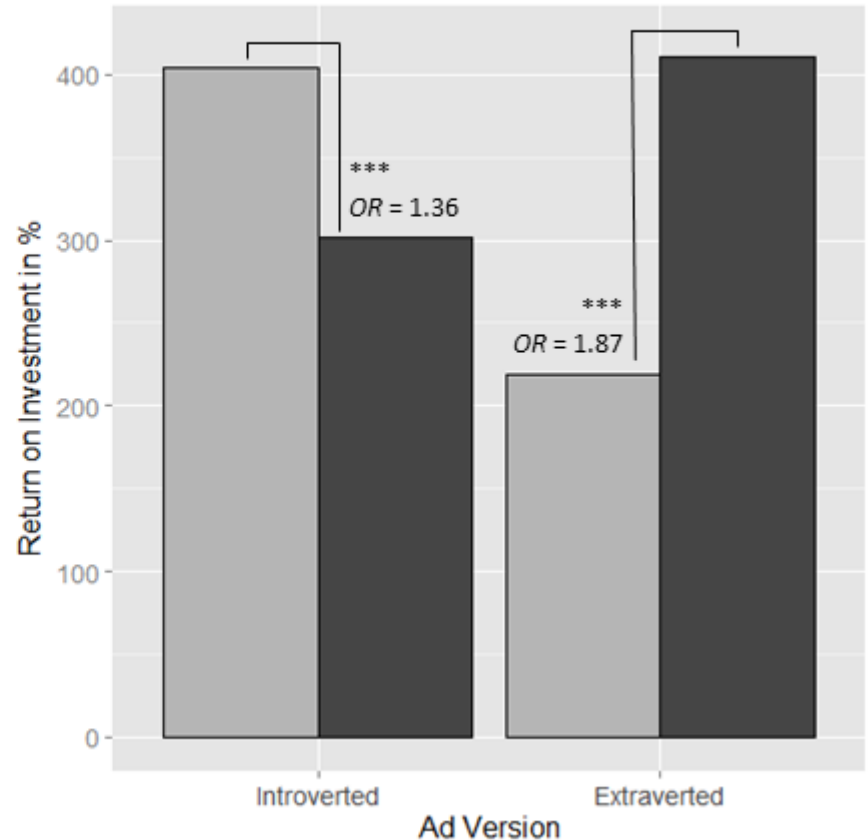
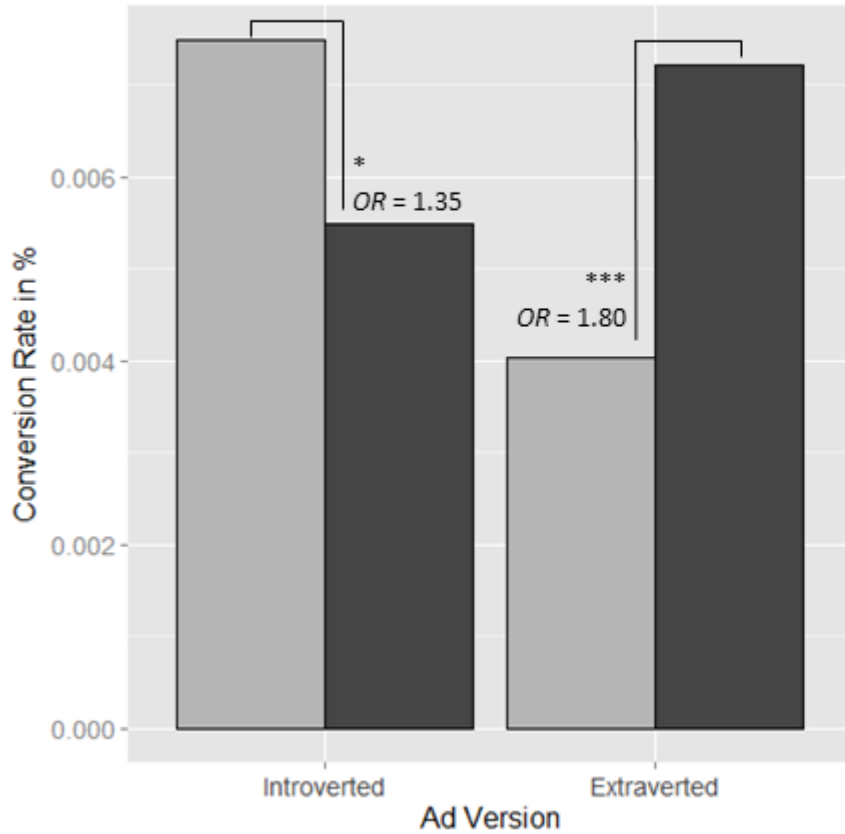


Love the spotlight and feel the moment

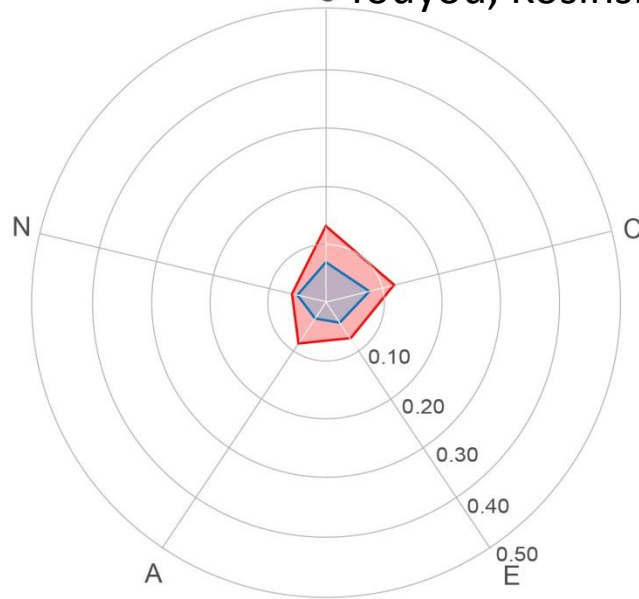


Beauty doesn't have to shout

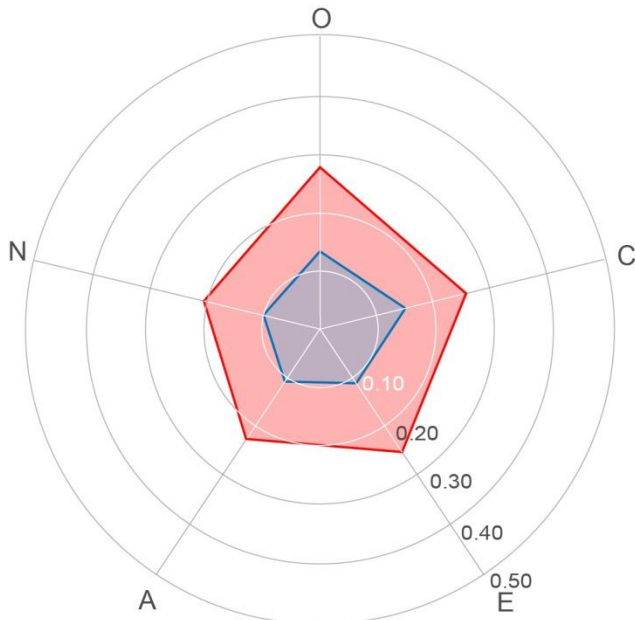
Target group  Introverted  Extraverted



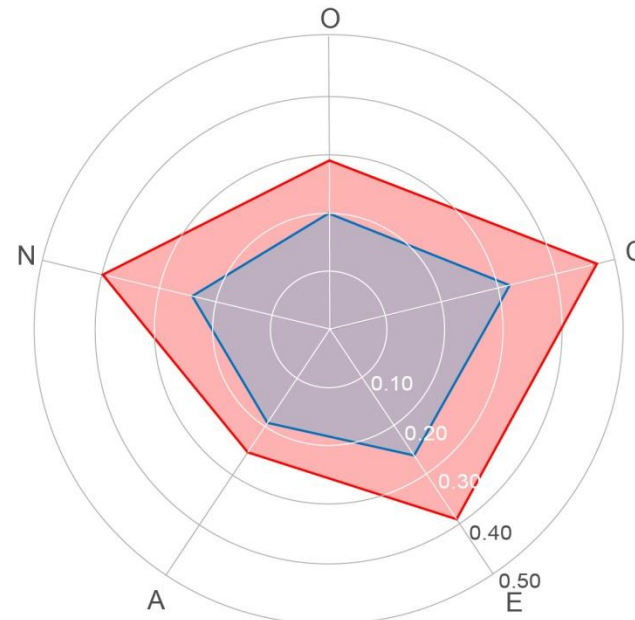
- Romantic couple
- Friendship dyad
- O:** Openness
- C:** Conscientiousness
- E:** Extraversion
- A:** Agreeableness
- N:** Neuroticism



Questionnaire-based personality



Behavior-based personality



Language-based personality

Interest in collaboration

1. Use of behaviour-based personality predictions in practice
2. Use of myPersonality data. See: www.mypersonality.org/wiki



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