Humantic AI

# HOW HUMANTIC AI WORKS





## **Build Relationships That Last.**

Sell. Hire. Win. More with Humantic.



Many epithets are used to describe Humantic AI — an AI that can predict personality without a test, a revolution in understanding human behavior, a technology that could reshape the world. But how exactly does it do all of this with a high degree of accuracy?

This whitepaper answers these questions. And more.



## Introduction

Humantic AI is a 'people intelligence' provider that enables users to reliably understand other people's personality and behavior even before interacting with them. It is used by companies of all sizes, from Fortune 500 organizations like McKinsey, Microsoft, Paypal, to startups.

Humantic AI is a pioneer in the field of predictive behavioral assessment. The Humantic platform is not just a Machine Learning and AI platform, it combines ML & AI with Social & IO Psychology, Computational Linguistics and Psycholinguistics, thereby creating one of the most powerful cross-domain applied research systems in the world.

It combines research done by Prof. James Pennebaker (of UT Austin) et. all. over the last 25+ years establishing strong correlations between linguistics and personality with work done by Dr. Michal Kosinski (of Stanford University), Dr. David Stilwell (of Cambridge University) et. all. establishing correlations between social activity and behavior.

Humantic AI relies on two approaches — psycholinguistics and computational psychometrics.



The high levels of accuracy and fault tolerance that set Humantic apart from its competitors are thanks to the multiple approaches.

#### 🔍 Humantic AI

## PSYCHOLINGUISTICS

Psycholinguistics is defined as the science of studying interrelations between language and psychological aspects, aka personality. Unknown to most, this field (even in its current avatar) has been around for 25+ years, with <u>00s of research papers</u> published so far with 000s of citations. Below is a snippet from one such <u>research</u> <u>paper</u>, which shows how linguistics could be used to reliably predict personality.

However, a purely linguistics-based approach suffers from two key challenges (detailed later in this paper). The solution for these challenges is to go beyond linguistics as Humantic AI does, and that is where Computational Psychometrics comes in.



### Correlations between Big Five personality traits and LIWC categories.

LIWC Category	N	Е	0	Α	С
Total pronouns	0.06	0.06	-0.21	0.11**	-0.02
First person sing.	0.12**	0.01	<u>-0.16 ***</u>	0.05	0
First person plural	-0.07	0.11**	<u>-0.1<sup>*</sup></u>	0.18 ***	0.03
First person	0.1 <sup>*</sup>	0.03	<u>-0.19 ***</u>	$0.08^{*}$	0.02
Second person	<u>-0.15 ***</u>	0.16	<u>-0.12<sup>**</sup></u>	0.08	0
Third person	0.02	0.04	-0.06	0.08	-0.08
Negations	0.11**	-0.05	<u>-0.13<sup>**</sup></u>	-0.03	<u>-0.17 ***</u>
Assent	0.05	0.07	<u>-0.11</u> **	0.02	-0.09 <sup>*</sup>





### COMPUTATIONAL PSYCHOMETRICS

Wikipedia defines computational psychometrics as the fusion of traditional psychometrics, cognitive sciences, and Al models applied to large-scale data. Instead of relying on language, it relies on other signals — activity patterns, profile information, metadata, and more. For example, the models show a clear correlation between 'Agreeableness' and the no. of recommendations given by someone on Linkedin. Of course, it is one amongst hundreds of factors being analyzed by the Al and ultimately plays a minuscule role by itself.

The work done by Dr. Michal Kosinski of Stanford University, Dr. David Stillwell of Cambridge University et. all. is seminal in this area. <u>Dr. Kosinski's website</u> lists a no. of research papers published by him and his peers. And while this field dates back only 10+ years or so, the science and accuracy of the approach are widely <u>accepted as proven</u> by top researchers in the field.



# VALIDATION & ACCURACY

A combination of the two approaches listed above makes Humantic AI highly accurate, outscoring other players by a large measure.

In an <u>empirical study</u> undertaken by I/O Psychologist Dr. Tom Janz, the observed behavior of 120 individuals was compared against their Humantic AI predicted behavior(results below). The average correlation across 16 different factors measured by Humantic AI is 0.71, which significantly outscores the published correlation by IBM Watson at 0.35.

Talent Factor	r (My Rating, Machine Score) N=120	r (DS Factor, Overall Index) N=432
Attitude and Outlook	.75	.74
Need for Autonomy	.51	29
Team Skills	.46	.75
General Regard	.46	.74
Bias for Action	.47	50
Role Stability	.47	.62
Learning Ability	.65	20
D: Dominance	.45	68
D: Influence	.47	.82
D: Steadiness	.49	.68
D: Compliance		.09
<b>B5: Openness to Experience</b>	.53	53
B5: Extroversion	.39	45
B5: Emotional Stability		17
B5: Agreeableness	.43	.61
B5: Conscientiousness	.37	.75

**Correlations between personal ratings and DeepSense factors** (n=120).

Note: Humantic AI was called DeepSense when Dr. Janz's paper was published.

IN MULTIPLE OTHER <u>TESTS BY</u> <u>CUSTOMERS</u>, SIMILAR RESULTS HAVE BEEN OBSERVED.

Humantic AI can predict personality with 85%+ accuracy, which is not only better than what a human could, it is also better or as good as the accuracy of best-in-class psychometric tests.

# CHALLENGES & CONCERNS

### CHALLENGES WITH PSYCHOLINGUISTICS

The challenge with a purely linguistics-based approach is that a large volume of written text (typically >2000 words) is required to produce a <u>result with high accuracy</u>. On the lower side, IBM Watson produces a warning below 600 words and Humantic AI refuses to predict results below 300 words.

The other challenge with a purely linguistics-based approach is that the text could have been authored by someone else, or written in a context with low relevance (an article criticizing a policy for example). Computational psychometrics addresses both these challenges.





### CHALLENGES WITH COMPUTATIONAL PSYCHOMETRICS

Availability of enough data is a common challenge across all AI-based approaches. The specific challenge here is in the area of privacy. Most research in the field focuses on highlighting what is possible to predict from social data and the risks to individual privacy that should be borne in mind.

Humantic AI addresses this challenge by simply not using any social data. Users cannot input any Facebook, Whatsapp, chat data into Humantic AI. Users can only input data that is already available to them, namely resume, LinkedIn profile, or simple text. It ensures that the algorithm never uses data that the user is not aware of — putting the user always in 100% control of the AI.



### **GHOSTWRITING**

### **ALGORITHM GAMING**

Efforts to game algorithms is a scenario that has existed forever, it is like a game of cat and mouse that's mostly won by the algorithms.

The most famous example of it is Google Search and we all still trust Google because we know that it knows how to handle those challenges.

Nevertheless, gaming of personality AI is still mostly a theoretical construct and it would be extremely hard to do even later.

Imagine a normal person reading the graph shared above and then trying to use fewer pronouns in their language for years so as to appear more 'open' and managing to change it by <1% as it is 1 out of 00s of factors being relied upon by the Al.

A small no. of profiles on LinkedIn tend to be ghostwritten. While this has an impact on overall accuracy, Humantic AI undertakes multiple measures to address the issue — certain kind of linguistic data that is unlikely to be ghostwritten (like recommendations, post comments etc.) gets higher value; relevance of each snippet is determined (a role description with details of the company instead of the role is omitted); and ultimately, the role of linguistics in the AI is capped at <50%.



### **LESS DATA**

The most valid concern is that of accuracy when there isn't enough data. To address this, Humantic AI doesn't provide results till it can be at least 40% confident. Above 40%, it provides a 'confidence score' for every result based on the amount of data available. Users can choose to provide additional data if the confidence score is below a certain %, or skip using the results completely if additional data is not available.

# ABOUT HUMANTIC AL

Humantic AI is a 'people intelligence' pioneer that enables its users to reliably understand other people's personality and behavior even before interacting with them. Using Humantic AI's cutting-edge behavior prediction AI, salespeople can consistently close more deals, recruiters can hire top candidates more often and organizations can build high-quality teams across the board.

Humantic AI is used by Fortune 500 organizations like McKinsey, Cognizant, Paypal etc. <u>Harvard Business Review</u> has written about its ability to shape our digital identity, <u>World Economic Forum</u> has featured it as an AI that can be used to reduce bias in recruiting and <u>The Wall St. Journal</u> has termed it the technology that will reshape the world.

"There is a great deal of academic research showing that our social media activity is an accurate indicator of our deepest psychological traits."

> Dr. Tomas Chamoro-Premuzic Professior of Business Psychology Columbia University









