

# PERSONALITY

P MICHELLE LEVINE

APRIL 28, 2026

# AGENDA

What is Personality?

How Can We **Automatically Detect Personality?**

What Data Improves Prediction Accuracy?

Applications & Ethical Concerns

Think about someone you know well.  
Write down how you would describe  
this person to others. Use as many  
words/phrases as necessary to fully  
describe the person.

# FROM WORDS TO PATTERNS

outgoing

talkative funny

energetic **smart**

thoughtful

caring

kind

**reliable**

calm

organized creative

resilient

# HAVE YOU EVER...

Asked ChatGPT to assess how your text or email sounds?

# CHATGPT

## **Try It Yourself (later!): How Do You Come Across?**

Take a recent email where you cared about your tone

Ask ChatGPT: “*What personality or tone does this convey?*”

- You might see: *warm, clear, professional, assertive*

Now add context:

- Who you're writing to
- The situation or goal

Ask again → compare the results

**Key Question:** How does **particular information** change perceived personality?

# CHATGPT: LLMS & PERSONALITY

## **Personalized Persuasion** (e.g., Matz et al., 2024)

- LLMs (e.g., ChatGPT) can tailor messages to the recipient
- Increased persuasiveness through personality-aligned language

## **Personality Inference** (e.g., Piastra & Catellani, 2025)

- LLMs can infer personality from written text
- Show **moderate to strong predictive ability**

LLMs can **infer personality** and **adapt communication**

Raises important questions about **accuracy, ethics, and influence**

# WHAT IS PERSONALITY?

This is about who you are – your characteristic style of behaving, thinking, and feeling.

## **How can we assess differences in personality?**

- 4 main approaches in psychology:
  - **Trait**
  - Psychodynamic
  - Humanistic
  - Social-Cognitive

# TRAIT APPROACH

**Personality = a combination of traits**

Assumes:

- People differ from each other in (relatively) stable ways.
- Traits are consistent ways of behaving and therefore can predict future actions.

Attempts to find a taxonomy (classification scheme) for core traits that define personality.

# DIMENSIONS OF PERSONALITY

Traits are grouped into ***dimensions of personality***

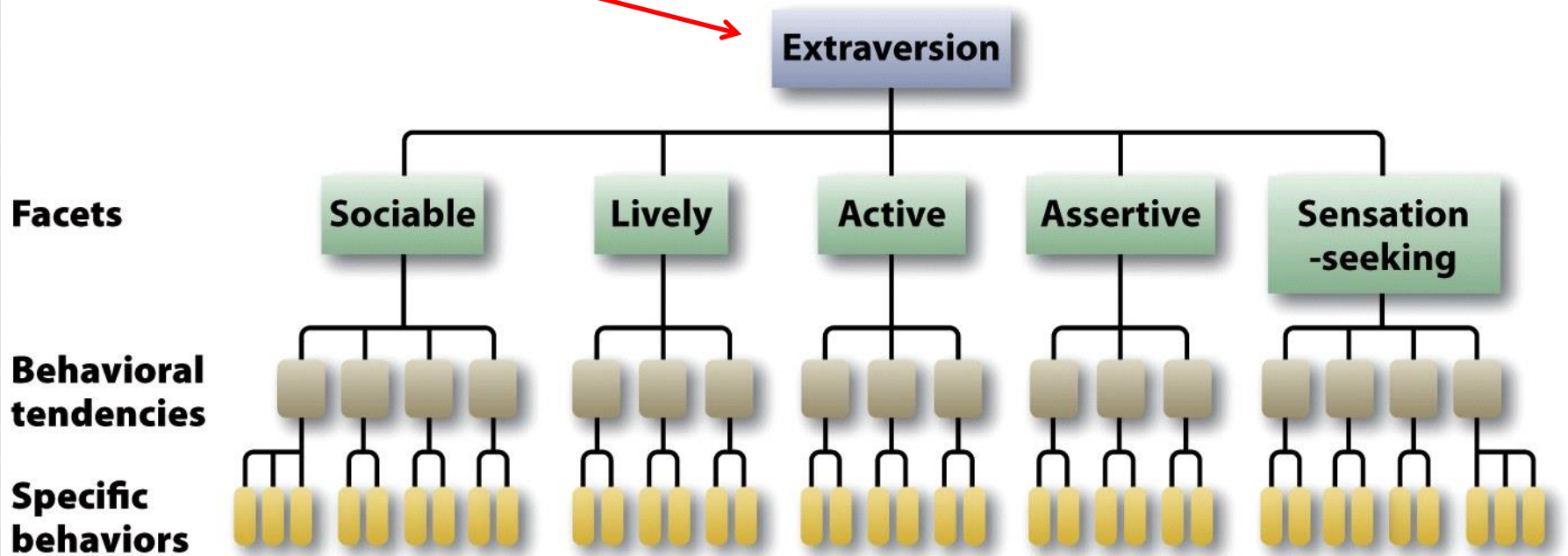
- Thus, personality is thought of as a combination of separate dimensions (as opposed to types).

## **How were the dimensions determined?**

- 18,000 words for potential traits (Allport & Odbert, 1936)
- Goal: sorted words into underlying groups/dimensions
- Used both self-report and informant data to measure personality.

# DETERMINING CORE TRAITS

Dimension



*Psychology, 8/e* Figure 15.2

© 2011 W. W. Norton & Company, Inc.

# THE BIG FIVE

**O**penness to experience

**C**onscientiousness

**E**xtraversion

**A**greeableness

**N**euroticism

**Table 12.2 The Big Five Factor Model**

Conscientiousness	organized ······ disorganized careful ······ careless self-disciplined ······ weak-willed
Agreeableness	softhearted ······ ruthless trusting ······ suspicious helpful ······ uncooperative
Neuroticism	worried ······ calm insecure ······ secure self-pitying ······ self-satisfied
Openness to experience	imaginative ······ down-to-earth variety ······ routine independent ······ conforming
Extraversion	social ······ retiring fun loving ······ sober affectionate ······ reserved

Source: McCrae & Costa, 1999, 1990.

# QUESTIONS ABOUT THE BIG FIVE

## **How stable are the traits?**

- Change over development
- Stable in adulthood

## **How heritable are they?**

- ~50% for each trait (.40 to .55 heritability)
  - Influence of temperament?
  - Other factors, ie, in extraversion

## **How about other cultures?**

- Traditionally traits are thought to be common across cultures
- But research has shown cultural differences in personality



# ARE TRAITS TRULY CONSTANT?

**Personality paradox:** people often behave less consistently than expected

- **Person-Situation Controversy** (e.g., Mischel 1968; 1984; 2004)
  - Part of the explanation for this paradox is the power of the situation

**Counter-argument:**

- Trait theorists argue that behaviors from a situation may be different, but average behavior remains the same
- Therefore, traits matter

**One solution? *Consistency of behavior as a trait***

- Interaction between personality and situations
  - Situations interact with individual differences
- Some people are more consistent in their behaviors—the Self-Monitoring Scale
  - \*Higher self monitoring = higher emotional intelligence

# TRAITS VS STATES

**Personality traits** = consistent; stable

**Personality states** = transient; variable

States are linked to traits but range based on other factors

- Ie, extraverted behavior vs extraversion
- Ie, anger vs hot-headed

**Both personality traits & states have tremendous predictive power!**

**Where do emotions play a role?**

- This gets tricky as emotions are transient and often called a state!
- Focus of research is on how *personality impacts emotions*

# ASSESSING PERSONALITY STATES

## **Traditional Approaches:**

- Daily diary & experience sampling methods
- Capture within-person variability over time

## **Emerging Approaches:**

- Digital traces (e.g., smartphones, wearables)
- Passive, continuous data collection

Early evidence of improved scalability and real-time tracking

# ASSESSING PERSONALITY TRAITS

**Personality inventories:** questionnaires (often with true-false or agree-disagree items) designed to gauge a wide range of feelings and behaviors assessing several traits at once

- **Clinical setting:** Minnesota Multiphasic Personality Inventory (MMPI)
- **Research:** NEO-FFI & TIPI (require clinical license)
- **Open source:** International Personality Item Pool (IPIP)

# NEO-FFI

Short questionnaire to assess the big 5 traits

Widely used in research

60 items (12/trait)

Likert scale

- SD (strongly disagree) — SA (strongly agree)
- 0 - 4

Example questions:

- When I'm under a great deal of stress, sometimes I feel like I'm going into pieces.
- I usually prefer to do things alone.

# TIPI

Newer, even shorter questionnaire to assess the big 5 traits

Starting to be used in research

10 items (2/trait)

Likert scale

- 1 - 7
- 1 = Disagree strongly; 7 = Agree strongly

# TEN-ITEM PERSONALITY INVENTORY-(TIPI)

Here are a number of personality traits that may or may not apply to you. Please write a number next to each statement to indicate the extent to which you agree or disagree with that statement. You should rate the extent to which the pair of traits applies to you, even if one characteristic applies more strongly than the other.

- 1 = Disagree strongly
- 2 = Disagree moderately
- 3 = Disagree a little
- 4 = Neither agree nor disagree
- 5 = Agree a little
- 6 = Agree moderately
- 7 = Agree strongly

I see myself as:

- 1. \_\_\_\_\_ Extraverted, enthusiastic.
- 2. \_\_\_\_\_ Critical, quarrelsome.
- 3. \_\_\_\_\_ Dependable, self-disciplined.
- 4. \_\_\_\_\_ Anxious, easily upset.
- 5. \_\_\_\_\_ Open to new experiences, complex.
- 6. \_\_\_\_\_ Reserved, quiet.
- 7. \_\_\_\_\_ Sympathetic, warm.
- 8. \_\_\_\_\_ Disorganized, careless.
- 9. \_\_\_\_\_ Calm, emotionally stable.
- 10. \_\_\_\_\_ Conventional, uncreative.

# IPIP

International Personality Item Pool

Public and open source of personality inventory items

ie, For testing for the 5 factors, IPIP-NEO has a 300 items and a 120 item version

# AUTOMATIC PERSONALITY DETECTION

## **Cues:**

- Written language (e.g., posts, messages)
- Spoken language & conversational patterns
- Nonverbal vocal features (tone, pitch)

## **Data Sources: (most recently)**

- Social media (e.g., Facebook, Twitter, blogs)
- General digital communication

## **Methods:**

- Feature-based: linguistic & stylistic cues
- Embeddings (e.g., word/sentence embeddings)
- Deep learning (e.g., BERT, transformer models)

Best performance: **combining features + models**  
(e.g., Azucar, Marengo & Settanni, 2017)

# DETECTION WITH WRITTEN LANGUAGE

## **Written language use → personality**

Pennebaker and King (1999), Linguistic styles: Language use as an individual difference

- Stream-of-conscious essays
- Big 5 personality assessment
- Lexical features (LIWC)
- Findings, ie.,
  - Agreeableness
    - more positive emotion words
    - fewer negative emotion words
    - fewer articles
    - more first-person

Table 6  
*LIWC Factors and Simple Correlations With Five-Factor Scores*

LIWC factor	Five-factor dimension				
	Neuroticism	Extraversion	Openness	Agreeableness	Conscientiousness
<b>Immediacy</b>	<b>.10*</b>	<b>.04</b>	<b>-.16**</b>	<b>.07+</b>	<b>-.02</b>
First-person singular	.13**	.04	-.13**	.07+	.01
Articles	-.09*	-.09*	.13**	-.15**	-.04
Words of more than 6 letters	-.03	-.04	.16**	-.03	.06
Present tense	.06	.01	-.15**	.04	.00
Discrepancies	.05	-.03	-.01	-.02	-.07+
<b>Making Distinctions</b>	<b>.05</b>	<b>-.14**</b>	<b>.06</b>	<b>-.05</b>	<b>-.13**</b>
Exclusive	.00	-.08*	.10*	-.06	-.08*
Tentativity	.06	-.14**	.11**	-.02	-.06
Negations	.05	-.12**	.00	-.04	-.15**
Inclusive	-.01	.07+	.01	.03	.06
<b>The Social Past</b>	<b>.04</b>	<b>.00</b>	<b>.08*</b>	<b>-.02</b>	<b>-.04</b>
Past tense	.03	.04	-.03	.06	-.06
Social	-.01	.12**	.02	.00	.02
Positive emotion	-.13**	.15**	-.06	.07*	.07+
<b>Rationalization</b>	<b>-.06</b>	<b>.02</b>	<b>-.03</b>	<b>.07</b>	<b>.04</b>
Insight	.03	-.02	.07*	.05	-.01
Causation	.03	-.08*	-.08*	.00	-.07*
Negative emotion	.16**	-.08*	.05	-.07*	-.15**

Some Patterns:

- Openness to experience & immediacy
- Extroversion and making distinctions
- Conscientiousness and making decisions

# DETECTION WITH SPOKEN LANGUAGE

**Can personality be detected from what is said and **how it is said**?**

E.g., Mairesse & Walker (2006)

**Data:** (*Matthias Mehl & James Pennebaker*)

- Natural daily conversations (recorded & transcribed)
- Personality rated by 5-7 independent observers

**Features Analyzed:**

- **What is said (linguistic content):**
  - LIWC categories (psychological word use)
  - MRC psycholinguistic features
- **How it is said (style & delivery):**
  - Utterance type (e.g., commands, backchannels)
  - Acoustic features (pitch, intensity, speech rate via Praat)

**Results:** Both **content and delivery** provide signals for personality inference

# DETECTION WITH SPOKEN LANGUAGE

## Modern Evidence

- **Deep learning** models combine **text + speech features** for higher accuracy
- LLMs can infer personality from **short text or conversations**
  - \*A shift into **interactive personality detection**

## Takeaway

- The question is no longer *if* we can detect personality
- It's *how accurately, from how little data, and with what risks*

# DETECTION FROM DIGITAL FOOTPRINTS

## Can digital behavior predict Big Five Traits? How Little Data Is Needed?

E.g., Youyou, Kosinski & Stillwell, 2015

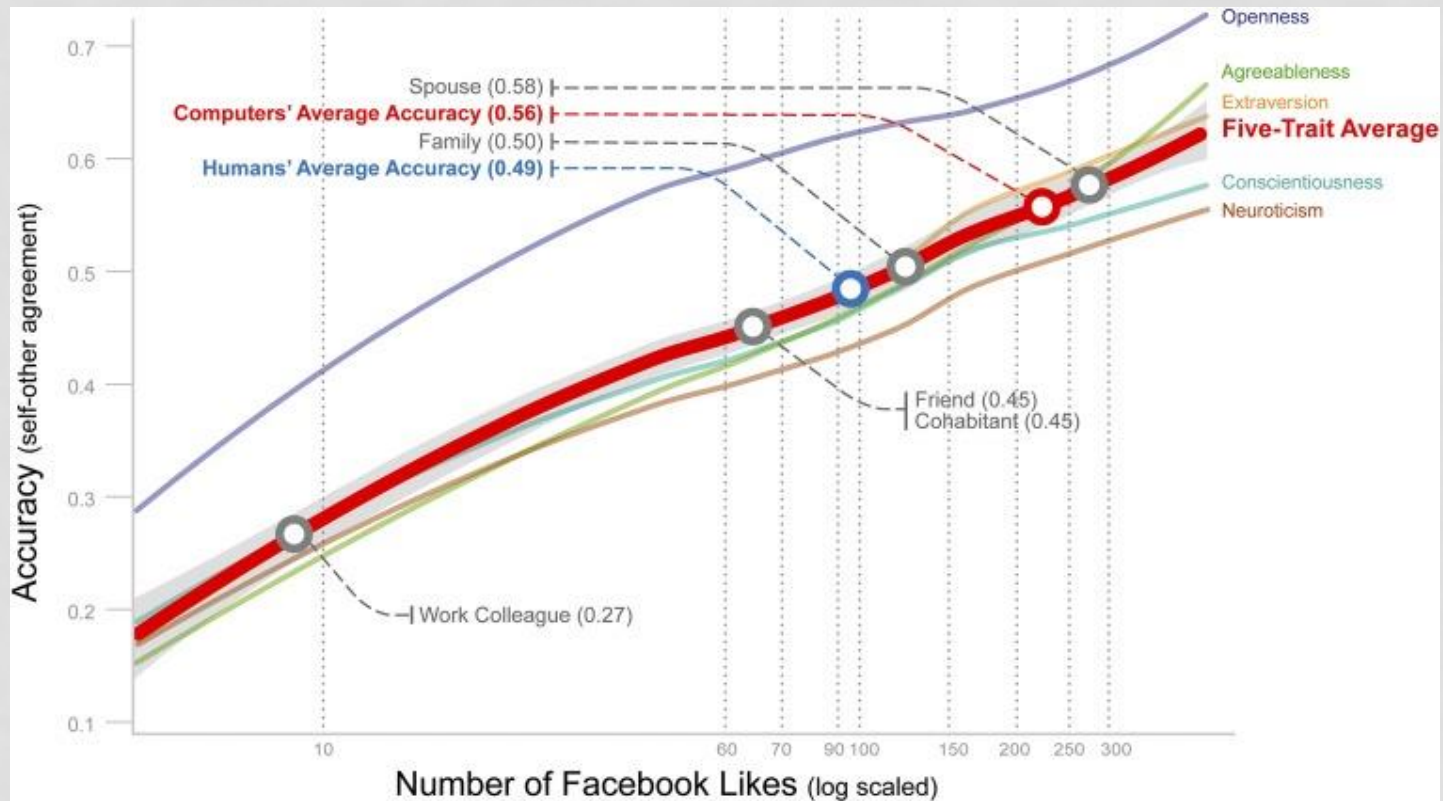
- Compared **computer predictions vs human judgments**
- Humans included close friends and acquaintances

### Evaluation Criteria

- Self–other agreement
- Inter-rater agreement
- External validity (compared to IPIP personality scores)

### Results:

- Computer models outperform human judgments
- Even close friends are less accurate than algorithmic predictions



# PREDICTING PERSONALITY IN 2026 & BEYOND

## **Key Findings:**

- Ability to predict personality **above chance**
- Best results with **multiple data sources**
- Different traits rely on different cues

## **Data Used:**

- Platform type (public vs private)
- Activity patterns & demographics
- Language (text) and images

## **Recent Advances:**

- Transformer/LLM-based models
- Strong performance from small text samples

# APPLICATIONS OF AUTOMATIC PERSONALITY DETECTION

## **Marketing**

- Infer traits from digital footprints → tailor ads & messaging
- Traits = stable preferences; States = context-specific behavior

## **Hiring & HR**

- Screen candidates via text, video, or audio
- Models (e.g., SBERT, LLMs) work with minimal data

## **Mental Health**

- Identify risk patterns
- Track language changes for early warning

## **Human-Computer Interaction**

- Adapt chatbots, assistants, and interfaces to use personality
- Detecting deception/sarcasm/irony

# APPLICATIONS OF AUTOMATIC PERSONALITY DETECTION

## **Education**

- Personalize learning & predict engagement

## **Social Media & Politics**

- Microtargeting, large-scale personality insights
- Ethical concerns (privacy, manipulation)

## **Security (Emerging)**

- Behavioral profiling, insider risk (limited reliability)

# CONCERNS & ETHICAL CONSIDERATIONS

## Core Risks:

- **Bias & fairness:** skewed training data, demographic disparities
- **Generalizability:** models may not transfer across platforms/populations
- **Transparency:** visibility around models and process
- **Privacy:** inference of sensitive traits, disclosure/consent

## Context Matters:

- **Data Source:** platform purpose versus user intent
- **User Expectations:** What people think is shared versus what is being shared (and inferred)
- **Consent:** Often implicit and rarely fully informed

le, Cambridge Analytica → large scale personality-based political targeting