# Humans vs. Machines: Who Knows Us Better?

## Understanding Personality Judgment Using Facebook Data and Machine-learning Algorithms

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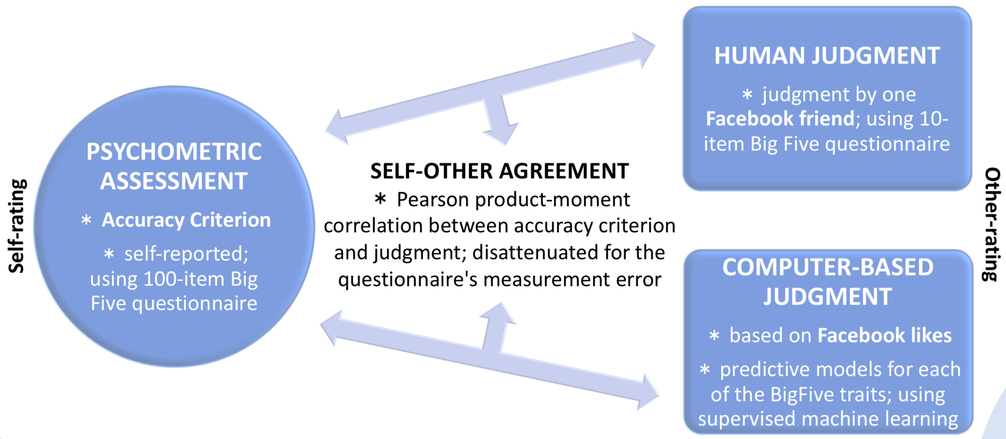
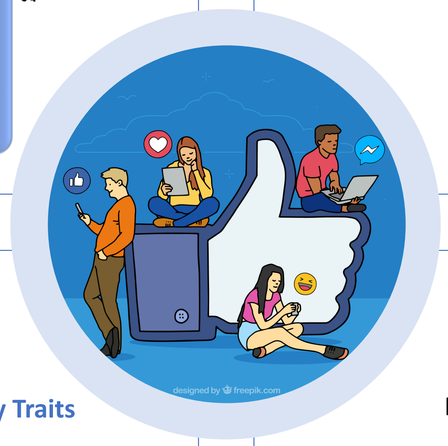
## RESEARCH QUESTION

Although current research indicates that humans are capable of satisfactory personality judgments even with a limited amount of information, recent studies also suggest that humans can be easily outperformed by computers that use automated algorithms to estimate our personality characteristics based on our digital footprint, which poses significant challenges for keeping our sensitive information private. This study attempts to replicate this claim and determine to what extent, if any, computers provide higher judgment accuracy for Big Five personality traits (openness, conscientiousness, extroversion, agreeableness, neuroticism), and seeks to understand what behavioral and/or social patterns lie behind lower or higher judgment accuracy in both types of judgement in question.

### Figure 1: Research Question Operationalization



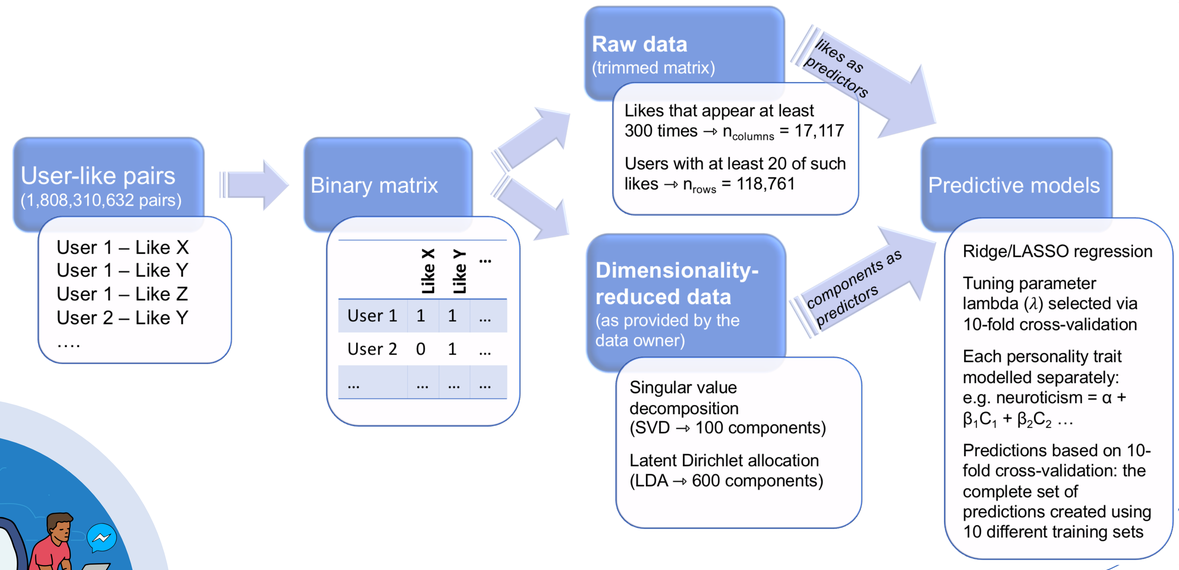




## DATA & METHODS

### myPersonality project:

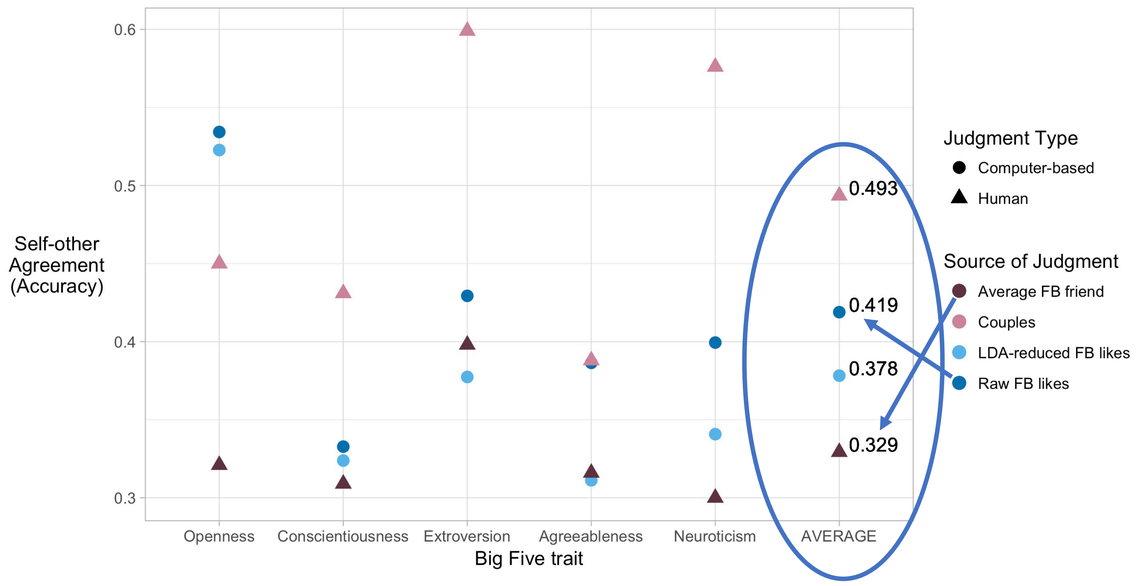
Facebook application ∗ 2007-2012 ∗ 25 different personality tests available ∗ 4 million Facebook users ∗ 6 million test results ∗ 300 thousand friend ratings ∗ wiki page: myPersonality.org

### Figure 2: Obtaining Big Five Personality Predictions from Facebook Likes




## KEY RESULTS

### Figure 3: Human vs. Computer-based Judgment Accuracy for the Big Five Personality Traits




Differences between ridge- or LASSO*-based predictive models are rather nominal. Accuracies in Figure 3 are based on LASSO models and using profiles with 300 likes and more (N = 5,060). The total number of likes-predictors used for training the models: 17,117 (see Figure 2). Average accuracies obtained using Fischer's r-to-z transformation. All computations were performed using the R programming language.

* least absolute shrinkage and selection operator

## DISCUSSION & CONCLUSION

From the data available, the **KEY MODERATORS** of judgment accuracy are:

**Computer-based judgment**
- ∗ closeness of the relationship
- ∗ similarity between the judge and the target
- ∗ personality of the target
- ∗ the trait/characteristic being judged
- ∗ number of likes

**Human judgment**

**The conditions under which the judgment occurs determine if computer-based judgment outperforms human judgment.** Our models perform best when at least 300 likes are available in a Facebook user's profile and such predictions are significantly more accurate than those provided by an average person in our sample. This is true for all Big Five personality traits, including high-visibility traits, such as extroversion. Computer-based judgment is supposedly more objective; it cannot make use of audiovisual clues important for human personality judgment, however, making this finding even more surprising. Existence of family ties boosts the overall judgment accuracy significantly for the human judgment, and so does similarity between the subjects as well as personality characteristics of the target, mainly high openness and low neuroticism. Big Five traits of the target seem to be even more important for the accuracy of computer-based judgment, suggesting **there exists a type of personality that is more "readable" for computer algorithms**, making such people more vulnerable in terms of potential manipulation and misuses of their information.

### KEY LIMITATIONS & TOPICS FOR FURTHER EXPLORATION:

non-random sample ∗ limited information about the Facebook relationships ∗ very specific accuracy criterion ∗ the two types of judgment might provide different perspectives on the targets' personality