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Evaluating the Predictive Accuracy and Perceived Validity of AI-Generated Archetypes

**MSc Software Engineering & Artificial
Intelligence**

Research Methods Proposal

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Background & Context



ARIES

- ▶ AI increasingly used for behavioural profiling
- ▶ Algorithmic identity systems influence society
- ▶ Astrology culturally popular across civilisations
- ▶ Limited empirical testing of symbolic AI profiling



Research Aim



TAURUS

- ▶ Evaluate predictive validity of AI archetypes
- ▶ Assess perceived psychological accuracy
- ▶ Investigate ethical and bias implications



Research Questions



GEMINI

- ▶ Can ML predict personality above chance?
- ▶ Do AI archetype reports feel accurate?
- ▶ Does the system produce bias patterns?



Literature: AI & Personality Prediction



- ▶ ML models predict traits from text or behaviour
- ▶ Big Five used as ground truth
- ▶ Accuracy often moderate
- ▶ Interpretability challenges remain



Literature: Big Five Personality Model



- ▶ Five traits: Openness, Conscientiousness, Extraversion, Agreeableness, Neuroticism
- ▶ Widely validated across cultures
- ▶ Used in computational psychology



Literature: Astrology & Personality



- ▶ Historical astrology across many civilisations
- ▶ Most studies show weak correlations with personality
- ▶ Used symbolically rather than scientifically



Literature: Barnum Effect



LIBRA

- ▶ People accept vague personality statements as accurate
- ▶ Explains horoscope popularity
- ▶ Important for perception analysis



Research Philosophy & Design



- ▶ Philosophy: Pragmatism
- ▶ Approach: Mixed methods
- ▶ Strategy: Experimental + Survey
- ▶ Time horizon: Cross-sectional



Phase 1: Predictive Modelling



SAGITTARIUS

- ▶ Participants complete Big Five questionnaire
- ▶ Provide astrological and physical descriptors
- ▶ Models: astrology, physical, combined
- ▶ Evaluation via cross-validation

Data

Model

Evaluation

Results



Phase 2: Perception Study



CAPRICORN

- ▶ Participants receive AI or control report
- ▶ Rate personal accuracy and relevance
- ▶ Likert-scale analysis

Data

Model

Evaluation

Results



Bias & Ethical Considerations



AQUARIUS

- ▶ Informed consent
- ▶ Data Anonymisation
- ▶ Avoid deterministic labelling
- ▶ Bias pattern analysis



Anticipated Challenges



PISCES

- ▶ Low predictive performance risk
- ▶ Small dataset
- ▶ Overfitting
- ▶ Barnum effect influence



Project Timeline

- ▶ Weeks 1–2 literature review
- ▶ Weeks 3–4 design & pilot
- ▶ Weeks 5–7 data collection
- ▶ Weeks 8–11 analysis & write-up



Expected Contribution

- ▶ Evaluate limits of symbolic AI profiling
- ▶ Study psychological impact of AI narratives
- ▶ Provide ethical discussion



Why Strong Prediction May Be Unlikely (Statistical Rationale)

- ▶ Zodiac systems divide people into ~12 categories, creating low-resolution predictive features
- ▶ Personality traits such as the Big Five are continuous and multi-dimensional
- ▶ Multiple comparisons can produce spurious correlations in symbolic datasets
- ▶ Perceived accuracy may result from cognitive biases such as the Barnum effect



References

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