

NYKKO VITALI

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 <https://github.com/IMNMV>

 LinkedIn

 My Website

Education

- 2024 - Present  **Ph.D. Student, Harvard University** Doctoral Program in Psychology
- 2018 – 2020  **B.A., University of Pennsylvania** Major in Psychology *Cum Laude*
- 2016 – 2018  **A.A., Community College of Philadelphia** Major in Psychology *Highest Honors*

Employment History

- 2021 – 2022  **Clinical Research Coordinator**, Frontotemporal Degeneration Center, University of Pennsylvania
- 2022 – 2024  **UX Research Assistant**, Exponent

Awards and Achievements

- 2025  **Rand Fund Grant**, Using NLP to Study Online Moral Discourse, \$8,000
- 2018  **Magner Nichols Public Speaking Award**, 2nd Place
- 2016  **Phi Theta Kappa Honor Society**

Research Publications

Journal Articles

- 1 S. A. Lehr, K. S. Saichandran, E. Harmon-Jones, N. Vitali, and M. R. Banaji, “Kernels of selfhood: GPT-4o shows humanlike patterns of cognitive dissonance moderated by free choice,” *Proceedings of the National Academy of Sciences*, vol. 122, no. 20, e2501823122, 2025.  DOI: 10.1073/pnas.2501823122.
- 2 E. Rhodes, D. Mechanic-Hamilton, J. S. Phillips, *et al.*, “Discrepancies in patient and caregiver ratings of personality change in Alzheimer’s disease and related dementias,” *bioRxiv*, 2023.  DOI: <https://doi.org/10.1101/arclin/acad079>.

Comments & Replies

- 1 S. A. Lehr, K. S. Saichandran, E. Harmon-Jones, N. Vitali, and M. R. Banaji, “Reply to Cummins et al.: GPT reveals cognitive dissonance that is both irrational and alarmingly humanlike,” *Proceedings of the National Academy of Sciences*, vol. 122, no. 35, e2518613122, 2025.  DOI: 10.1073/pnas.2518613122.

Research Interests

-  Computational social science, large language models, natural language processing, cognitive immunity, metacognition

Technical Projects

Real-Time Interaction Study Platform

2026

Built a multiplayer web app for human-AI distinction studies using Python (FastAPI) and reactive JavaScript. Includes robust matchmaking, dynamic LLM persona injection (Warm, Contrarian, Neutral), and dropout-resilient session handling. Logs high-dimensional behavioral data, including continuous confidence and keystroke dynamics, to PostgreSQL. [GitHub Repository](#).

Mobile Metacognition Research Platform

2026

Developed a mobile platform for computational psychology experiments quantifying metacognitive efficiency ($\text{meta-d}'/\text{d}'$) across six psychophysics domains. Integrated real-time model fitting using Maximum Likelihood Estimation with Newton-Raphson optimization to estimate confidence-sensitive signal detection parameters during task performance. Enabled large-scale behavioral data collection for cross-domain comparisons of perceptual sensitivity and metacognitive calibration.

ClaudeR

2025

Developed an R package that bridges RStudio with LLMs, enabling interactive coding sessions where LLMs execute code, iteratively solve errors and displays results in real time. [GitHub Repository](#).

Neuroimaging AR Pipeline for Vision Pro

2024

Developed a processing pipeline to convert 7T MRI scans into interactive 3D brain models for Apple Vision Pro using FreeSurfer, custom Python scripts, and Blender for anatomical visualization. [LinkedIn Post](#).

Technical Skills

Coding	■ R, Quarto, Python, Swift, Bash, MCP
Databases	■ PostgreSQL, MongoDB
Web Dev	■ HTML, CSS, JavaScript, Flask