

Yanting Han, Ph.D.

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Summary

Interdisciplinary researcher with a strong track record of leading end-to-end research projects, from identifying ambiguous research questions to communicating key findings. Proficient in survey and experimental design, large-scale human data collection via crowdsourcing platforms, and data analysis (including data cleaning, visualization, predictive modeling, and hypothesis testing). Proven ability to manage projects and deliver impactful results both independently and as part of a team.

Employment

2022 - 2024	Postdoctoral Scientist California Institute of Technology, USA
Spring 2018, 2019	Head Teaching Assistant (Introduction to Neuroscience) California Institute of Technology, USA

Education

2016 – 2022	California Institute of Technology, USA Ph.D., Neuroscience/Psychology
2012 – 2016	Tsinghua University, China B.S., Engineering Physics

Experience

A shared structure for emotion experiences from narratives, videos, and everyday life.

- Investigated the structure of emotion experiences across a diverse set of stimuli: **150 narratives, 1,000 videos, and 10,000+ real-life experiences in 1,000+ participants (with pre-registration and public sharing of data and analysis code)**.
- Designed and implemented surveys (**Qualtrics**) and experiments (**PsychoJS**) to collect over a million ratings on scientifically motivated affective scales via **Prolific** within a single month.
- Uncovered the latent dimensions of emotion experiences through a comprehensive set of linear and nonlinear **dimensionality reduction techniques (PCA, EFA, CFA, and autoencoder)**.
- Visualized and probed distributions of emotion experiences using **interactive UMAP plots, hierarchical clustering, and K-means clustering**.

Self-reported subjective experience of emotions in alexithymia.

- Led a **large-scale (900 participants)** investigation of emotion experiences in alexithymia, providing a theoretical advance in understanding alexithymia subtypes with direct clinical relevance.
- Managed the project from design to dissemination, including data collection and **mentoring junior research personnel (1 grad, 1 undergrad)**.
- Engineered novel metrics to quantify rating behavior, between-subject consensus, and lexical diversity using structured ratings and unstructured free-text responses.
- Analyzed the data using a range of advanced methods including **regression, RSA, UMAP, and natural language processing techniques (NLTK, LIWC, GPT-based sentiment analysis)**.

COVID-Dynamic: A large-scale longitudinal study of socioemotional and behavioral change across the pandemic.

- **Co-led the design and launch of a large-scale, 18-wave longitudinal study (total cost: \$200k)** tracking the behavior and experiences of 1,000+ US residents throughout the COVID-19 pandemic.
- Managed the entire project lifecycle, including **coordinating with external collaborators, and all aspects of data collection on crowdsourcing platforms (monitoring, participant communication, and payment logistics)**.
- Ensured research transparency through **pre-registration and public sharing** of de-identified datasets, code and detailed documentation.
- **Directed a team of 4 undergrads to curate a repository of over 500 COVID-related psychological studies** and developed an interactive Bokeh visualization to disseminate insights to the scientific community.

Estimating the heritability of psychological measures in the Human Connectome Project dataset.

- Demonstrated the feasibility of fingerprinting (identifying the same individual across testing times with significant accuracy) using behavioral measures from the Human Connectome Project (HCP).
- Developed an innovative **machine learning based approach (Ridge classifier, Random Forest model)** to estimate heritability by classifying monozygotic and dizygotic twins.

Publications

* Indicates equal contribution. Mentees are underlined.

Peer-reviewed

Han, Y., & Adolphs, R. (2024). A shared structure for emotion experiences from narratives, videos, and everyday life. *Isience*. [\[PDF\]](#)

Rusch, T*, Han, Y*, Liang, D*, Hopkins, A., Lawrence, C., Maoz, U., ... & COVID-Dynamic Team. (2023). COVID-Dynamic: A large-scale longitudinal study of socioemotional and behavioral change across the pandemic. *Scientific data*. [\[PDF\]](#)

Han, Y., & Adolphs, R. (2020). Estimating the heritability of psychological measures in the Human Connectome Project dataset. *PloS One*. [\[PDF\]](#)

Dubois, J., Galdi, P., Han, Y., Paul, L. K., & Adolphs, R. (2018). Resting-state functional brain connectivity best predicts the personality dimension of openness to experience. *Personality Neuroscience*. [\[PDF\]](#)

Liu, Y., Gao, M., Mei, S., Han, Y., & Liu, J. (2013). Ultra-compliant liquid metal electrodes with in-plane self-healing capability for dielectric elastomer actuators. *Applied Physics Letters*. [\[PDF\]](#)

Manuscripts under review and in prep

Lin, C., Han, Y., Keles, U., Xu, Y., Lu, J., Zheng, R., & Adolphs, R. (R & R at *Affective Science*). Investigating the structure of emotion: tools, pitfalls and recommendations.

Han, Y., Arora, S., Outten, B., & Adolphs, R. (*in prep*). Self-reported subjective experience of emotions in alexithymia.

Han, Y., & Adolphs, R. (2022). Trait resilience protects against depression caused by loneliness during the COVID pandemic. *PsyArXiv*. [\[PDF\]](#)

Skills

Programming	Python (scikit-learn, Pandas, NumPy, SciPy, Keras, TensorFlow, NLTK), Matlab, R, JavaScript, SQL
Experimental	PsychoPy, PsychoJS, Qualtrics, Prolific, Mechanical Turk
Languages	English, Chinese (native)