

DAVID BRAUN, Ph.D.

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PROFESSIONAL SUMMARY

Thoughtful and collaborative data scientist with over a decade of experience leading complex research projects, designing experiments, analyzing human data, and communicating insights to diverse audiences. Skilled in translating abstract questions into rigorous, data-driven solutions. Seeking to apply analytical and interpersonal strengths in a mission-driven, applied data science role.

SKILLS

Programming: Python (9 yrs; *Numpy*, *SciKit-Learn*), R (10 yrs, *tidyverse*, *ggplot*), Git/GitHub, Linux/Bash, SQL

Statistical & Machine Learning: Predictive analysis, A/B testing, Hypothesis testing, Bayesian methods, Regression (linear/logistic, hierarchical), PCA, clustering

Data & Domain Expertise: Advanced preprocessing and analysis of high dimensional neuroscience data, psychometric modeling, survey design, causal inference, cognitive computational modeling

Collaboration: Published research cross-functionally with cognitive scientists, neuroscientists, epidemiologists, computer scientists, material scientists, engineers

Communication: Published 10+ papers in scientific, peer-reviewed journals. Presented research orally at 25+ conferences and colloquia to technical and non-technical audiences

PROFESSIONAL EXPERIENCE

Postdoctoral Researcher in Neuroscience, *Drexel University*, Philadelphia, PA

Oct 2023 – Present

- Developed a novel unsupervised method to identify individual patterns in spontaneous thinking by applying individual-level PCA and hierarchical clustering, **advancing personalized diagnostics in mental health and precision medicine** ([GitHub](#)).
- Analyzed 174GB of multimodal EEG/ECG data to **identify biomarkers of anxiety-related interoceptive dysfunction**, using cluster-based permutation testing to reveal that individuals with high state anxiety exhibit reduced interoceptive sensitivity during high arousal states ([paper](#)).
- Built and maintain automated Python ETL pipeline (> 1,500 LOC) to convert raw EEG, fMRI, and behavioral data from two lab experiments into an industry-standardized format, **improving reproducibility and eliminating hours of manual processing across research workflows** ([GitHub](#)).
- Led multiple high-impact projects, including statistical consulting on a pre-registered real-time fMRI study and a first-author NIH proposal (under review) **advancing computational models of spontaneous thought**.

Postdoctoral Researcher in Cognition, *Lehigh University*, Bethlehem, PA

Sept 2020 – Aug 2023

- Enhanced infectious disease forecasting accuracy** by incorporating over 10,000 crowdsourced behavioral responses into probabilistic models of COVID-19 spread, providing real world evidence (RWE) that perceived public compliance with health guidelines can improve forecasts up to 3 weeks ahead ([paper](#)).
- Validated psychometric scale measuring cyber-physical technology concerns using data from over 1,000 participants with factor analysis and structural equation modeling, advancing technology adoption and security.
- Mentored 3 undergraduates in independent research projects ([example conference poster](#)).

Graduate Researcher, *Lehigh University*, Bethlehem, PA

Sept 2014 – May 2020

- Published a **neuroeconomics framework** to quantify mental effort ([paper](#)).
- Created Python/JavaScript tools to improve behavioral data collection efficiency **10x**.

EDUCATION

Ph.D. Cognitive Neuroscience | Lehigh University | May 2020

M.S. Cognitive Neuroscience | Lehigh University | Dec 2016

B.A. Psychology | Stockton University | May 2013

ACADEMIC TEACHING EXPERIENCE

- Population Health Data Science Algorithms (Head instructor for undergraduate students)
- Statistical Analysis of Behavioral Data (TA for undergraduate students)

- Graduate Seminar: R for Data Science (Head instructor for graduate students)