DAVID BRAUN, Ph.D.

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PROFESSIONAL SUMMARY

Behavioral scientist with 10+ years' experience leading interdisciplinary research, grant writing, and publishing in top journals. Expertise in decision making and evaluating behavioral interventions. Skilled in psychometrics, open science, and advanced modeling using R and Python. Proven collaborator and clear communicator with both scientific and lay audiences. Dedicated to applying behavioral insights in a mission-driven role.

SKILLS

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

Statistical & Machine Learning: Predictive analysis, Hypothesis testing, Bayesian & Frequentist methods, Regression (linear/logistic, hierarchical), PCA, clustering, ANOVAs, *t*-tests

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, economists

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*

- **Principal Investigator on NIH early-career grant**; independently developed research aims, drafted full proposal, and led both original submission and resubmission process of project investigating neural and cognitive mechanisms underlying adaptive and maladaptive forms of off-task thinking (see Specific Aims).
- 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).
- Analyzed 174GB of multimodal EEG/ECG data to **identify biomarkers of anxiety-related interoceptive dysfunction**; cluster-based permutation testing revealed that individuals with high state anxiety exhibit reduced interoceptive sensitivity during high arousal states (first-authored paper; poster; blog post).
- Applied novel individual-level PCA and hierarchical clustering method, uncovering unique patterns in spontaneous thinking, **advancing personalized diagnostics in mental health and precision medicine** (GitHub; poster).

Postdoctoral Researcher in Cognition, *Lehigh University, Bethlehem, PA*   *Sept 2020 – Aug 2023*

- **Led evaluation of COVID-19 non-pharmaceutical interventions** (NPIs) using probabilistic models and 10,000+ crowdsourced responses, providing real world evidence (RWE) that perceived public compliance with NPIs can improve forecasts 3 weeks ahead (first-authored paper; data/code on OSF; poster).
- Conducted **psychometric validation of a scale** measuring public concerns about cyber-physical technologies (1,000+ participants) and **assisted cognitive scientists, engineers, and computer scientists in grant writing**.
- **Mentored** 3 undergraduates in independent research projects (example student poster).

Graduate Researcher, *Lehigh University, Bethlehem, PA*   *Sept 2014 – May 2020*

- **Championed open science practices** by preregistering studies, sharing data and code publicly, and delivering numerous talks at colloquia on the importance of transparency, reproducibility, and collaborative research in advancing scientific knowledge (slides).
- Published a novel paradigm quantifying effort-based **decision making** (first-authored paper; 35+ citations; poster).
- **Taught R programming** to undergraduates as head instructor of "Population Health Data Science Algorithms" and to graduate students through leading a seminar on "R for Data Science," fostering technical proficiency and data literacy across diverse skill levels (Population Health DS Syllabus; R for DS syllabus).

EDUCATION

Ph.D. Cognitive Psychology | Lehigh University | May 2020
M.S. Cognitive Psychology | Lehigh University | Dec 2016
B.A. Psychology | Stockton University | May 2013