John Thorp, Ph.D.

New York, NY | (919) 971-3656 | john.n.thorp@gmail.com | GitHub

SUMMARY

Data Scientist with a Ph.D. in Psychology and 8 years' experience designing and analyzing large-scale experiments to deliver insights into user experience. During my PhD, developed an independent research program leading end-to-end research where I learned to translate complex experiences into quantifiable metrics, design experiments to probe those metrics, and harness cutting-edge statistical and machine learning methods to precisely measure their patterns with precision. With the Science of Learning Research Initiative, I was able to perform this work in applied settings across the university, collaborating with engineers, educators, and support staff to measure the impact of learning interventions and deliver insights to senior leadership at the university.

CERTIFICATIONS, SKILLS & INTERESTS

- **Machine Learning & Statistical Modeling**: Classification, regression, hypothesis testing, multilevel regression (linear, logistic, multivariate), Bayesian methods, clustering, time-series forecasting
- **Big Data & Engineering**: SQL, Python (pandas, scipy, sklearn, PyTorch), R (tidyverse, glmer, brms), Git, AWS, reproducibility best practices, Tableau, ggplot2
- **Collaboration & Communication**: Senior leadership presentations, cross-functional research alignment, translating analytical results into actionable strategy

WORK EXPERIENCE

Davachi Laboratory, Columbia University　　　　　　　　　　　　　　　　　　**Sep 2019 - Present**
Research Scientist　　　　　　　　　　　　　　　　　　　　　　　　　　　　*New York, NY*
- The Davachi Memory Laboratory investigates how people encode, retain, and act on information using behavioral experimentation, neuroimaging, and computational modeling.
- Led seven end-to-end behavioral research studies, each with custom survey instruments, observational protocols, and tailored statistical models (Bayesian regression, network analysis) to test specific hypotheses of user behavior.
- Designed, implemented, and deployed a machine learning pipeline to predict real exam scores from open-ended student reflections using high-dimensional features, such as the entropy and trajectory of semantic embeddings.
- Implemented spatial ICA on a large fMRI dataset to uncover novel functional clusters in the human brain differentiated by a multivariate marker of information processing.
- Published 6 peer-reviewed manuscripts and presented 5 invited talks along with 3 conference posters, showcasing the ability to drive projects and a passion for communication.

Columbia University　　　　　　　　　　　　　　　　　　　　　　　　**Jul 2024 - Present**
Lecturer in the Discipline of Psychology; Director of Undergraduate Studies　　　*New York, NY*
- Designed and taught graduate/undergraduate courses on research methods (reliability, validity, experimental design) and statistics (Bayesian regression, causal inference), earning top student evaluations in the department.
- Guided 60+ student research projects from concept to analysis, ensuring robust construct operationalization and validity in survey-based studies.

Science of Learning Research Initiative, Columbia University　　　　　　　　**Jan 2022 - May 2024**
Research Scientist　　　　　　　　　　　　　　　　　　　　　　　　　　　*New York, NY*
- Evaluated learning interventions across the university by designing 5 applied experiments in real-world classrooms in collaboration with engineers, educators, and support staff, delivering actionable insights to university senior leadership.
- Informed grading policy reform and faculty training program across the medical school by uncovering an 8% grading bias against Black students through Bayesian regression of 7 years of medical school assessment data.
- Built real-time predictive models of student engagment combining EEG, OpenFace vectors, and PPG heart rate data using LSTM neural networks in PyTorch, compared against human-labeled engagement.
- Created Python tools (e.g., Muse EEG reconnection package) enabling uninterrupted, multi-modal live data capture.

Adcock Laboratory　　　　　　　　　　　　　　　　　　　　　　　　　**Jun 2017 - May 2019**
Research Associate　　　　　　　　　　　　　　　　　　　　　　　　　　　*Durham, NC*
- Developed analysis pipelines for mobile EEG headsets and eyetrackers supporting multimodal research in Python
- Designed and programmed network analysis of large neuroimaging dataset, contributing to publication in *Nature*

EDUCATION

Columbia University　　　　　　　　　　　　　　　　　　　　　　　　　　**May 2024**
Ph.D., Psychology

University of North Carolina at Chapel Hill　　　　　　　　　　　　　　　**May 2017**
B.A., Philosophy of Cognitive Neuroscience, Music