

## Professional Summary

- 8+ years of experience in qualitative and quantitative research, specializing in analyzing complex human data and developing efficient, scalable workflows.
- Multidisciplinary background combining psychology (user-centered experiment design, A/B testing, surveys) with statistical rigor and computational modeling expertise.
- Neural-AI innovator with a track record of applying advanced ML/DL models (e.g., variational autoencoders, graph neural network) to uncover causal brain-behavior relationships with clinical relevance.

## Skills

**Programming Languages:** Python, R/RStudio, SQL, MATLAB, Git, Github

**Machine Learning:** PyTorch, PyG, TensorFlow, Keras, Scikit-learn

**Bayesian Methods & Optimization:** Bayesian inference, MCMC, variational inference, hierarchical modeling

**Big Data & Cloud:** PySpark, SparkSQL

**Data Processing & Visualization:** Pandas, NumPy, dplyr, ggplot2, tidyverse

## Collaborative AI Projects

### Machine Learning Engineer, Task Leader

06/2025 – 09/2025

*Extreme Weather Forecasting in Bhutan — Omdena Project* [GitHub Repo](#) [🔗](#)

Omdena is a global platform for collaborative AI projects addressing real-world problems. ([omdena.com](https://omdena.com)) [🔗](#)

- **Led a team of international collaborators** to build an **end-to-end flood forecasting system**, aligning priorities with local stakeholders, architecting the overall pipeline, and co-developing the **MVP roadmap** with the project manager.
- **Designed and implemented an ETL pipeline** using **Python**, **CDS API**, and **xarray** to fetch and process multivariate time-series climate data (e.g., rainfall, temperature, humidity) in GRIB format from ERA5 reanalysis for downstream modeling.
- **Directed and implemented model development**, including training and validating **ML/DL models** (e.g., random forest, XGBoost, LSTM, GRU, Transformer) for **multi-horizon time series flood forecasting**, with collaborative workflows managed via **Git and GitHub**.
- **Oversaw and contributed to EDA and model optimization workflows**, ensuring effective feature engineering and rigorous validation (e.g., **hyperparameter tuning**, **cross-validation**).

## Experience

### Research Fellow

04/2022 – Present

*National Institutes of Health - Baltimore, MD, US*

- Applied **inferential statistical methods** (e.g., t-tests, ANOVA, mixed-effects models) to analyze behavioral, neuroimaging, and clinical data across studies (across >500 sessions), performing **hypothesis testing** to draw group-level conclusions.
- Integrated **reinforcement learning (Q-learning)** with a **hierarchical Bayesian model** to explain neuromodulation outcomes and support **causal inference**, reconciling neural and behavioral data across >300 trials from 31 human participants.
- Developed **conditional variational autoencoders (VAEs)** to decode latent brain network dynamics from resting-state fMRI from more than 300 sessions, enabling measurement of neuromodulation effects that aligned with behavioral changes.
- **Automated ETL pipeline** for fMRI and behavioral datasets (~100 sessions), cutting preprocessing time from 2 hours per session to under 20 minutes and ensuring consistency across 5+ downstream analyses.

### Postdoctoral Fellow

02/2021 – 03/2022

*Northwestern University Feinberg School of Medicine - Chicago, IL, US*

- **Initiated cutting-edge research** on frontal cortex-midbrain function, contributing novel theoretical insight with clinical relevance; results published in *Nat. Commun.* (<10% acceptance rate), presented at invited conferences, and featured by NIH media.

- Led functional MRI (fMRI) and transcranial magnetic stimulation (TMS) **experimental design** using olfactory and visual stimuli across 3 studies (~300 sessions), overseeing **survey design, UI flow, and A/B testing** to optimize participant experience; resolved technical challenges in precisely synchronizing odor delivery with MRI acquisition.
- **Managed day-to-day staff operations**, including training, task coordination, and scheduling, to ensure smooth execution of neuroimaging studies involving complex experimental protocols and multi-session data collection.
- **Mentored and supervised** research assistants and summer interns, guiding independent research projects, reviewing code and experimental scripts, and fostering strong analytical and problem-solving skills.

**Education** 

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<b>PhD, Psychology</b> <i>Ohio State University - Columbus, OH, US</i>	<i>08/2016 – 01/2021</i> <i>GPA: 3.9/4.0</i>
<b>Master’s, Statistics</b> <i>Ohio State University - Columbus, OH, US</i>	<i>08/2016 – 05/2019</i> <i>GPA: 3.7/4.0</i>
<b>Bachelor’s, Psychology</b> <i>Beijing Normal University, Beijing, China</i>	<i>09/2012 – 07/2016</i> <i>GPA: 4.0/4.0</i>

**Certifications** 

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- Generative AI with Large Language Models (DeepLearning.AI / AWS)
- Machine Learning Specialization (Coursera / Stanford)
- Deep Learning Specialization (Coursera / Stanford)
- SQL for Data Science (Coursera / UC-Davis)