

Holly Kular

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SUMMARY

Research scientist with 6+ years of experience in machine learning, experimental design, and data-driven research. Proven ability to lead cross-functional teams, communicate technical insights to stakeholders, and deliver data-driven solutions in fast-paced environments. Seeking a Data Scientist or Machine Learning Scientist role to employ latest machine learning methods to extract insights from large datasets.

SKILLS

Programming languages: Python (Pandas, NumPy, SciKit-Learn, PyTorch, TensorFlow), R (tidyverse), Matlab, Git, & web programming (JavaScript, HTML, CSS).

Machine Learning: Regression models (linear, regularized, circular), Classification (naïve Bayes, k-Nearest neighbors, logistic regression, SVM), Neural networks (RNNs, SNNs), Dimensionality reduction (PCA, ICA), Time-series analysis & forecasting

Statistics and Inference: Mixed-effects models (linear & generalized), Analysis of variance (ANOVA), Bayesian modeling & inference, Permutation tests & hypothesis testing, Power simulations

Experimental: A/B testing & randomized controlled experiments, Cohort analysis & user segmentation, Surveys & behavioral data collection

EXPERIENCE

Graduate Research Scientist, University of California, San Diego

2021-Present

- Designed and trained custom recurrent neural networks to achieve 90% accuracy on 6-AFC decision tasks.
- Modernized legacy TensorFlow 1.0 codebase by translating to PyTorch 2.5+, enabling compatibility with modern CUDA/GPU hardware and ensuring continued reproducibility.
- Executed 10+ custom-coded human behavior experiments with +300 participants, collecting >100,000 high-precision trial responses using OpenGL graphics for precision-timing.
- Published and presented findings at national conferences earning awards (NEI Grant 2023)
- Perform statistical analyses (GLM, mixed-effects models, ANOVA, permutation tests, Bayes) and generate data visualizations (ggplot, seaborn, matplotlib).
- Accelerated neural network evaluation and classification performance by 20x through distributed GPU training, reducing pipeline runtime.
- Validated significance findings, ensuring reproducibility with both parametric (ANOVA) and non-parametric (permutation) approaches.

Research Assistant, Stanford University

2019 - 2021

- Collaborated on a multi-site grant, coordinating project updates across teams, resulting in 4 peer-reviewed publications.
- Dockerized analysis pipeline of large high-dimensional brain and behavior dataset, streamlining data cleaning and analysis, reducing timeline to publication.

SELECTED PROJECTS

RNN Learning Biases

I trained RNNs to learn biases to optimize their behavior in probabilistic environments and tested the strength of representations using strategic lesioning.

Predicting Visual Memory

What causes visual memory errors? I developed a model to predict memory errors in visual decision-making tasks leveraging large datasets of human behavior to identify parameters that influence memory performance.

EDUCATION

University of California, San Diego, PhD in Experimental Psychology (Computational Neuroscience)

2026

University of California, Los Angeles, BS in Neuroscience

2019