

# Xiaoyue Zhu

Neuroscience Ph.D.

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## SKILLS

- Python | NumPy, Pandas, Scikit-learn, TensorFlow, Keras
- R | lme4, ggplot2, tidyverse
- Stan | Bayesian Modelling
- Machine Learning | Regression, Trees, SVM, Neural Networks
- SQL
- Git
- MATLAB

## CERTIFICATIONS

- Deep Learning Specialization by DeepLearning.AI
- Applied Data Science with Python by University of Michigan
- R Programming by Johns Hopkins University
- The Unix Workbench by Johns Hopkins University
- SQL for Data Science by University of California, Davis
- WSET Level 3 in Wines by Wine & Spirits Education Trust

## CONFERENCES

- Cold Spring Harbor Asia Neuroscience Symposium 2019  
Poster Presentation
- Society for Neuroeconomics 2021  
Talk Presentation

## DISSERTATION

Analyses of decision under risk in rats. Advisor: Jeffrey Erlich

<https://github.com/xiaoyuezhuh/dissertation/>

## EDUCATION

**New York University** August 2016 - Dec 2021

Doctor of Philosophy, Neuroscience

- Key courses include Maths Tools, Bayesian Modelling, Machine Learning, and Causal Inference
- Developed and trained rats on novel behavioral tasks using a customized high-throughput system
- Extracted, analyzed, and visualized complex behavioral data using SQL, R, Python, and MATLAB
- Developed and fitted Hierarchical Bayesian models inspired from economics and neuroscience on high-dimensional data
- Performed optogenetic and pharmacological experiments

**University of St. Andrews** Sep 2012 - Jun 2016

B.S. Neuroscience with First Class Honors

**University of California, Irvine** Sep 2014 - Jun 2015

Exchange Program with 3.87 GPA

## EXPERIENCE

**New York University | Teaching Assistant**

September - December 2017, New York

- Independently led recitations for Intro to Neural Science
- Gave a lecture on "Neuroscience of Decision-making"

**University of St. Andrews | Research Assistant**

September 2015 - April 2016, U.K.

- Investigated motor neuron properties in *Xenopus laevis* using *in vivo* extracellular recording

**University of California, Irvine | Research Assistant**

January 2015 - July 2015, Irvine, California

- Assisted a project investigating hippocampal-cortical connections in rodents with virtual reality paradigms

## PUBLICATIONS

- Zhu, Xiaoyue, et al. "Frontal but not parietal cortex is required for decisions under risk." *bioRxiv* (2021).
- Li, Wen-Chang, Xiao-Yue Zhu, and Emma Ritson. "Mechanosensory stimulation evokes acute concussion-like behavior by activating GIRKs coupled to muscarinic receptors in a simple vertebrate." *Eneuro* 4.2 (2017).
- An analysis of decision under risk in mice, rats and humans (*first author, in draft*)
- A rodent paradigm for studying perceptual decisions under asymmetric reward (*first author, in draft*)