Suinan Xiao

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EDUCATION

Brandeis University, Waltham, MA August 2023 - Present
MS in Computer Science

Brandeis University, Waltham, MA Graduated May 2023
BS in Biology & Neuroscience
- High Honors; Senior thesis advised by Sacha Nelson

SKILLS

Languages: Python, R, Java
Tools/Concepts: Linux, Git, Seurat/Scanpy, Pytorch, AWS EC2, Statistical Analysis

RESEARCH EXPERIENCE

Bioinformatician - Kurmangaliyev Lab, Brandeis University August 2023 – Present
Investigated the molecular mechanisms behind brain wiring in the developing *Drosophila* brain.
- Designed machine learning model that predicts developmental times of *Drosophila* brain
- Performed routine scRNA-seq data analysis
- Integrated ROGUE for evaluating scRNA-seq clustering purity into analysis pipeline
- Developed and maintaining a Shiny web app for visualizing the developing *Drosophila* visual system single-cell dataset

Research Assistant - Nelson Lab, Brandeis University September 2021 – May 2023
Investigated the role of core circadian gene *Clock* and *Npas2* in regulating homeostatic plasticity in the mammalian neocortex
- Prepared RNA sequencing libraries and analyzed sequencing data using DEseq2
- Cultured HEK293 cell lines and generated adeno-associated virus (AAV)
- Performed calcium imaging using spinning-disk confocal microscope
- Written image analysis scripts in MATLAB

Research Assistant - Rosbash Lab, Brandeis University September 2020 – August 2021
Investigated the circadian impact of the expression of Parkinson's related proteins *Parkin* and *hSNCA* in clock neurons
- Programmed Raspberry-Pi for sleep phenotype monitoring
- Created CRISPR-Cas9 transgenic construct using Gibson Assembly

PROJECTS

Single-cell Development Time Hybrid Learning Model October 2023 – Present
A VAE-gradient boost hybrid model trained to predict the time point of single-cell RNA-seq samples of the *Drosophila* brain
- Written in Python using Pytorch and XGBoost

Shiny Server Hosting Single-cell interactive interface August 2023 – Present
A data interaction feature embedded to the Kurmangaliyev lab website
- Hosted via AWS EC2 server running Shiny server in R

AWARDS

MIT iQuHACK 2024: Second place February 2024
DeisHacks 2024: Hidden Gem January 2024