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Jong M. Shin

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Publications

1. *Interclass GPCR heteromerization affects localization and trafficking* (2020), Science Signaling [link]
2. *Site-Specific Incorporation of Genetically Encoded Photo-Crosslinkers Locates the Heteromeric Interface of a GPCR Complex in Living Cells* (2020), Cell Chemical Biology [link]
3. *Fully automated head-twitch detection system for the study of 5-HT2A receptor pharmacology in vivo* (2019), Scientific Reports [link]
4. *Role of mGlu2 in the 5-HT2A receptor-dependent antipsychotic activity of clozapine in mice* (2018), Psychopharmacology [link]

Professional Projects

Inductive bias experiment (JOVO Lab) [GitHub]
- Implemented ML models from sklearn and trained on nonlinear simulation data
- Generated mathematically derived posterior probability for exclusive OR and spiral dataset
- Implemented point-wise Hellinger distance and explored the effects of extrapolation by ML models

Web application for human behavioral experiment (JOVO Lab) [GitHub]
- Developed the website for human behavioral experiment to collect inference performance
- Designed frontend using HTML/CSS/JavaScript and powered backend using python (Flask, SQLalchemy)

Multivarite time-series hologram signal parsing (JOVO Lab, MindX) [GitHub]
- Cleaned and pre-processed proprietary hologram time-series datasets
- Investigated statistical significance of the signals detected from the datasets by conducting multivariate two-sample tests using in-house statistical software written in python

Glaucoma prediction using modified ResNet (Intuitive) [GitHub]
- Designed modified ResNet architecture (pretrained ResNet + convolutional net) using pytorch
- Pretrained the model with image colorization task followed by training on ophthalmological dataset to classify glaucoma and non-glaucoma from clinical retinal images

Relevant Experience

Graduate Summer Engineering Intern ..... **July 2020 to September 2020**
Johns Hopkins University, Baltimore, MD
- Produced augmented image dataset from ImageNet for training iRadonMAP algorithm in MATLAB
- Learned to use cudatools for implementing various deep nets from scientific publications

Post baccalaureate IRTA research fellow ..... **November 2018 to March 2021**
National Institute on Aging, the National Institutes of Health, Baltimore, MD
- Conducted parametric/non-parametric linear regression analysis of the national omics datasets such as metabolomics and proteomics using python and R

Graduate Research Scholar (Adviser: Javier Gonzalez-Maeso, Ph.D) ..... **June 2017 to October 2018**
Virginia Commonwealth University, Richmond, VA
- Developed Magnetic Ear Tag Assay to automate rodent behavioral test (patent application submitted)

Education

Masters of Science and Engineering, Biomedical Engineering (GPA: 4.0/4.0) ..... **August 2021**
Johns Hopkins University - Whiting School of Engineering, Baltimore, MD

Masters of Science, Physiology and Biophysics (GPA: 4.0/4.0) ..... **August 2018**
Virginia Commonwealth University - School of Medicine, Richmond, VA
Thesis: Role of C121A in mGluR2 homodimeric expression and function

Skills

Python (Pandas, Numpy, Scipy, Sklearn, Pytorch, Flask), MATLAB, R, HTML/CSS, Java, Military (USN)