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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 extrapolative behiavor of ML models

Web application for human behavioral experiment (JOVO Lab) [GitHub]

- Developed the web application for human behavioral experiment to collect inference performance
- Designed front-end using HTML/CSS/JavaScript and powered back-end using python (Flask, SQLalchemy)

Probabilistic linkage and causal inference on COVID-19 (JHU CDEM) [GitHub]

- Built an automated system for probabilistic linkage pipeline to clean and join multiple hospital datasets
- Built a data analytic pipeline to parse hospital datasets via causal inference methods to provide analytical guideline for COVID-19 vaccination distribution within underrepresented minorities

Multivarite time-series hologram signal parsing (MindX) [GitHub]

- Cleaned and preprocessed 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

Relevant Experience

Research Intern ..... **May 2021 to present**
Microsoft Research, Redmond, WA

- Develop a web application that automates the process of causal inference using React and typescript to power front-end and flask and python to service back-end in the context of human trafficking and COVID-19
- Collaborate with scientists and research engineers from social resilience team at MSR

Data Science Intern..... **January 2021 to May 2021**
Johns Hopkins University School of Medicine, Baltimore, MD

- Built a data preparation pipeline to clean and join multiple hospital datasets by probabilistic linkage
- Built a data analytic pipeline to parse hospital datasets via causal inference methods to provide analytic guideline for COVID-19 vaccination distribution in underrepresented minorities

Post baccalaureate IRTA research fellow.....**November 2018 to May 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

Education

Masters of Science and Engineering, Biomedical Engineering (GPA: 4.0/4.0) ..... **May 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