DANIEL IONG

Ph.D Candidate in Statistics

danieliong.me https://github.com/danieliong https://www.linkedin.com/in/danieliong/
Ann Arbor, MI daniong@umich.edu 510-816-8686 US Citizen

RESEARCH EXPERIENCE

Graduate Student Research Assistant

University of Michigan, Ann Arbor, Department of Statistics

Aug. 2018 - present

A Latent Mixture Model for Heterogeneous Causal Mechanisms in Mendelian Randomization

- Developed novel probabilistic clustering method for causal inference in Epidemiology (Mendelian Randomization)
- Implemented Monte-Carlo EM algorithm in C++ and R to perform statistical inference.
- Invited to present method and results to statisticians and medical researchers at international seminars

Developed R package: `https://github.com/danieliong/MRPATH`

Created website to showcase method: `danieliong.me/mr-path/`

Machine learning methods for predicting geomagnetic indices (ongoing)

- Applied machine learning and time series methods to forecast geomagnetic activity in collaboration with space weather researchers
- Wrote data pre-processing and analysis tools tailored for geomagnetic data using Scikit-learn, Tensorflow, Pytorch

Python module: `https://github.com/danieliong/GeoMagTS`

Code for analysis: `https://github.com/danieliong/SYMH-Prediction`

Undergraduate Research Assistant

University of California, Davis, Department of Statistics

Apr. 2016 - Apr. 2017

NSF-funded Research Project: Predicting Dynamics for functional data

- Analyzed economic data using functional data analysis methods in R.
- Extended existing empirical dynamics model to include covariates to increase coefficient of determination.

Undergraduate Honors Thesis: Toward a spatial-temporal analysis of pesticide concentrations

- Implemented EM algorithm in R to fit state-space model to pesticide concentrations data containing missing values.

NSF-funded Research Project: Processing and analyzing data from the Human Connectome Project

- Applied principal components analysis and canonical correlation analysis to study the relationships between behavioral and cortical measures in R

TEACHING EXPERIENCE

Graduate Student Instructor

University of Michigan, Ann Arbor

Aug. 2018 - Apr. 2020

STATS551: Bayesian Modeling and Computation (graduate)

STATS451: Bayesian Data Analysis (undergraduate)

STATS 250: Intro. to Statistics and Data Analysis (undergraduate)

- Prepared lectures on advanced topics in Bayesian modeling.
- Created and graded homework assignments.
- Advised students on exclusive projects in applied Bayesian analysis.
- Taught two weekly labs on basic concepts in statistics.
- Held weekly office hours to answer questions about course material and homework.

EDUCATION

Ph.D Statistics

University of Michigan, Ann Arbor

Winter 2022 (expected) Ann Arbor, MI

Relevant Coursework

Linear Models | Statistical Inference | Multivariate Data Analysis | Stochastic Processes | Adv. Linear Algebra | Data Science in Python | Computational Data Science | C++ Programming

B.S. Statistics *(high honors)*
B.A. Economics *(honors)*

University of California, Davis

June 2017 Davis, CA

SKILLS

</> Programming Languages

Python	●●●●○
R	●●●●○
C++	●●○○○
Julia	●○○○○

Statistics/Machine Learning Methods

Bayesian statistics | Regression analysis | Time series analysis | Causal inference | Monte-Carlo sampling | Neural Networks | Generative models | Statistical computing | Uncertainty quantification

Data Science Tools

Numpy | Pandas | Scikit-learn | Tensorflow | PyTorch | Jupyter Notebook | ggplot | Matplotlib | SQL

>_ Computing Tools

Command line | Linux | Git | High performance computing

Languages

English | Cantonese | Mandarin

PUBLICATIONS

Iong2020