Xi Chen

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Education

Sun Yat-sen University (SYSU)   **08/2014-06/2018**
Bachelor of Science in Mathematics and Applied Mathematics
Overall GPA: **3.3/4.0**

University of California, Davis (UC Davis)   **09/2021-Now**
Master of Biostatistics
Overall GPA until 2022F: **3.89/4.0**

Research Experience

Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences   **09/2019-07/2021**
Research Assistant, Supervised by Dr. Miao, Fen
Project: Cuffless Blood Pressure Estimation Algorithms for Continuous Health-Care Monitoring
➢ Collected Cuffless ECG and PPG data from hospitals or community clinics, and preprocessed the data using digital filters like 50Hz Notch filter, Butterworth filter etc. with Matlab; performed QRS waves and feature points detection with Pan-Tompkins algorithm with Matlab
➢ Implemented Support Vector Machine, Long-short Term Memory, and Convolutional Neural Network like Resnet18 network to predict the blood pressure; evaluated and ameliorated our models and algorithms based on the AAMI and BHS standard in Python, Pytorch, and Tensorboard
Research: Multiclass Arrhythmia Detection and Classification From Photoplethysmography Signals Using a Deep Convolutional Neural Network (https://doi.org/10.1161/JAHA.121.023555**)**
➢ Preprocessed ECG data and classified different arrhythmia types for further model training
➢ Helped adjust deep convolutional neural network to classify multiple arrhythmias from photoplethysmography signals
Research: 8-month cardiac consequences of COVID-19 patients discharged from hospital: a prospective cohort study (submitted)
➢ Contacted hundreds of recovered COVID-19 patients and studied about the cardiac consequences of this virus; collected patients' cardiac MRI, ECG and laboratory data; preprocessed these data using Python and Matlab
➢ Applied some statistical models such as linear mixed effects model to analyze the 8-month cardiac consequences of these patients discharged from hospital with R, SPSS and Matlab; drew charts in the paper with Origin Lab

Project

Elliptic Curves and Lubin-Tate Formal Groups   **11/2017-05/2018**
Bachelor Graduation Thesis; Advisor: Associate Professor Yang, Qilin
➢ Self-learned some materials like *The Arithmetic of Elliptic Curves* and *Algebraic Number Theory* to grasp more knowledge about arithmetic properties of elliptic curves, Lubin-Tate Formal Groups

Survival Analysis on effects of Breast Feeding on Risk of Pneumonia in Infants   **9/2021-12/2021**
BST 222 Course Project; Advisor: Distinguished Professor Davis M. Rocke
➢ Applied several survival analysis methods such as KM, NA curves and cox model to analyze infant Pneumonia data.

Longitudinal Data Analysis for Ichs data set   **4/2022-6/2022**
BST 224 Course Project; Advisor: Assistant Professor Chen, Shuai
➢ Used longitudinal data analysis methods to determine if vitamin A deficiency will increase the risk of respiratory infections in children. Correlation structure model, GEE model and GLMM were applied.

Eigenvalue Bias in High-dimensional PCA   **9/2022-12/2022**
STA 251 Course Project; Advisor: Professor Debashis, Paul
➢ Learned how random matrix theory (RMT) was used to illustrate single factor bias in finance arbitrage pricing model.
➢ Experiment with Marcenko-Pastur distribution and explain the eigenvalues bias phenomena in High-dimensional PCA.

Skills

➢ Matlab, Python, R studio, Mathematica, Pytorch, Excel VBA, Origin Lab, SPSS