Yizhen (Stephen) Jia

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Education

- **Doctor of Education (EdD)**, Westcliff University, Irvine, CA
  Leadership, Curriculum, and Instruction — Sep 2024 - Present
- **Master of Science (M.S.)**, Stony Brook University, Stony Brook, NY
  Computational Applied Mathematics and Statistics — Aug 2021 - May 2023
- **Bachelor of Science (B.S.)**, Stony Brook University, Stony Brook, NY
  Theoretical Mathematics; Applied Mathematics and Statistics — Aug 2017 - May 2021

Coursework

- **Mathematics**: Calculus, Linear Algebra, Real/Complex Analysis, Approximation Theory, Numerical Ordinary/Partial Differential Equations, Abstract Algebra.
- **Statistics**: Probability, Mathematical Statistics, Regression Analysis, Time Series Analysis.
- **Computer Science**: Data Structures, Algorithms, Python, Java, C++, Machine Learning, Medical Imaging, Computer Vision.
- **Economics**: Microeconomics, Macroeconomics, Game Theory.

Technology Skills & Projects

- **Convolutional Neural Network for Blood Pressure Prediction**: Developed a CNN model to analyze pulse waveform data and predict blood pressure (SBP, DBP, MAP). Preprocessed raw pulse data through bandpass filtering and normalization techniques. Built a CNN with two 1D convolutional layers (32 filters each) followed by a flattening and fully connected layer, optimizing the model using the Adam optimizer and mean squared error loss. Evaluated the model's performance with an R^2 score of 0.98, demonstrating strong predictive accuracy. Visualized data trends and results using Python-based data visualization libraries (Matplotlib).
- **Data Analysis**:
  - Analyzed a synthetic dataset containing dependent and independent variables related to genetics and environmental factors using linear relationship analysis and linear regression tests. Developed and optimized a Dependent and Independent Variable Probability Model, applying advanced statistical techniques to identify and interpret significant correlations.
  - Analyzed College Graduates' Salary data using methods such as Missing Completely At Random (MCAR) and Missing Not At Random (MNAR). Developed and optimized a predictive model for salary outcomes, enhancing its accuracy through iterative testing and cross-validation.
- **Machine Learning for Stock Market Analysis**: Utilized machine learning methods, including Logistic Regression, Random Forest, Neural Networks, Support Vector Machine, and Long-Short-term Memory networks to predict stock market trends. Analyzed datasets from sources like Kaggle's Space Titanic and stock data from 23 mega companies (e.g., TSLA, AAPL, AMZN) for predictive modeling and future trend analysis.

- **Numerical Analysis and Computational Mathematics**: Conducted in-depth research in Numerical Linear Algebra, focusing on techniques like QR Householder factorization, Singular Value Decomposition, and Krylov Subspace Iteration. Studied and implemented Approximation Theory and conducted extensive research on Ordinary/Partial Differential Equations (ODEs/PDEs), including their application to 1D, 2D, and 3D problems.
- **Medical Imaging Analysis**: Applied advanced image segmentation methods, including Chan-Vese, Level-Set, and Mumford-Shah techniques, to locate abnormal zones (e.g., tumors, lesions) in CT scans. Enhanced image quality using Histogram Equalization and Laplacian of Gaussian filters, and employed Gaussian smoothing for noise reduction in medical imaging applications.

Teaching Experience

- **Math Tutor**, S.A.M Singapore Math, Belmont, CA Sep 2023 – June 2024
  Provided small classroom mathematics tutoring for K-8 grade students, using the S.A.M Singapore Math curriculum and assisting with school homework. Fostered a passion for mathematics in students, enhancing their critical thinking and self-motivation, which led to significant improvements in their performance.
- **Calculus Teacher**, Bay Area Technology School, Oakland, CA 2024 Spring Semester
  Taught and mentored high school students in Calculus 1 and Pre-Calculus. Developed comprehensive teaching handouts, practice questions, and exams, while effectively managing the classroom environment.

Certifications

- **Actuary Exam of Probability**, Society of Actuaries (SOA)
- **California Subject Examinations for Teachers (CSET)**, Mathematics Subject

Personal Summary

- Open to internship and relocation.
- Marathon amateur athlete; Fitness Enthusiast; Amateur Swimmer.