Shu-Cheng Zheng

0971-825-799 | j319206325@gmail.com | github.com/bookbnnbnn | linkedin.com/in/shu-cheng-zheng-633148226/

Education

National Taiwan University *Taiwan, Taipei*

Master of Applied Mathematics · GPA: 4.0/4.3 *Sep 2021 - Sep 2024*

- **Research:** Weighted Linear Regression, Empirical Baysian Model, and Protein Structure
- **Courses:** Data Science, Statistical Theory, Multivariable Analysi, Artificial Intelligence, Machine Learning, Information Security

National Chengchi University *Taiwan, Taipei*

Bachelor of Statistics minor Applied Mathematics · GPA: 3.9/4.3 *Sep 2017 - Aug 2021*

- **Courses:** Mathematical Theory, Statistical Methods, Deep Learning, Programming, Data Structure, Finance, Economic,

Experience

MoBagel Inc. *Taiwan, Taipei*

Data Scientist Intern *Oct 2022 - Mar 2023*

- Proficient in utilizing deep learning techniques to develop effective solutions for tabular data problems, including feature engineering using denoised autoencoders and building models by XGBoost.
- Skilled in writing maintainable code with a focus on readability and proper documentation, ensuring ease of maintenance and modification.
- Experienced in version control systems such as Git, enabling seamless collaboration with team members and ensuring stable and efficient product releases.

Taiwan Semiconductor Manufacturing Co., Ltd.(TSMC) *Taiwan, Tainan*

Manufacturing Engineer Intern *Jul 2022 - Aug 2022*

- Proficient in optimizing production processes in the manufacturing industry to increase product stability.
- Leveraged deep learning models such as ResNet, XGBoost, and SVM to create an ensemble model and predict the best possible path for each combination.
- Conducted hypothesis testing using location family whether the mean of the population was significantly reduced after process improvements.

Projects

A robust empirical Bayesian inference to quantify the performance of an atomic model *Taipei, Taiwan*

National Taiwan University and Academia Sinica · *Sep 2022 - Aug 2023*

- Resolved protein structures at the atomic level using cryo-EM, overcoming challenges related to uneven resolution and varying atomic volumes in the density map.
- Developed a hierarchical Bayesian model that allows each amino acid atom to follow its own Gaussian distribution, providing a more accurate representation compared to the existing Q-score method, which oversimplifies by assuming all amino acid atoms share the same parameters.
- Applied a weighting technique to enhance the robustness of estimates, improving the model's resilience across varying conditions.

Multimodal Pathological Voice Classification *Taipei, Taiwan*

AI CUP 2023 Competition (Rank: 1/371) · *Apr 2023 - May 2023*

- Developed a system to detect throat-related voice diseases, which are challenging to diagnose due to the deep location of the vocal cords. The system combines dynamic voice signals and static medical history data to classify throat symptoms into five categories.
- Addressed the challenge of handling audio data by using the Wav2Vec model to convert the audio signals into vector data, followed by PCA for dimensionality reduction.
- Applied the Balanced Bagging Classifier to train multiple classifiers on different subsets of the data, incorporating both tree-based models and a transformer-based TabPFN model. This helped balance the class distribution through random sampling, addressing the issue of imbalanced data and improving the performance of the minority class.

Prediction of Suspected Money Laundering Transactions *Taipei, Taiwan*

AI CUP 2022 Competition (Rank: 14/685) *Oct 2022 - Dec 2022*

- Developed a system to predict suspicious money laundering activities in the financial industry.
- Applied a Denoise AutoEncoder (DAE) with an XGBoost model. The role of DAE here is to extract features from the data and improve the stability of feature extraction by adding noise.

Skills

Programming	Python, R, SQL, Markdown, and LaTeX,
Framework	PyTorch, TensorFlow, Keras, and Scikit-Learn
Developer Tool	Git, VS Code, Jupyter, Docker
Language	Mandarin(Native), English(B2 with IELTS 6.5), French(A1)