Yuhong Zhang

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EDUCATION

9/2022-Present **Master of Science in System Science**, Donghua University, Shanghai, China

GPA: 3.7/4

Focus: Biomathematics, Ordinary Differential Equations and Dynamical Systems

9/2018-6/2022 **Bachelor of Science in Statistics**, North University of China, Shanxi, China

GPA: 3.5/4

Thesis: Predictive Analysis of Ventilator Pressure in Patients with Pneumonia Based on Deep Learning

RESEARCH INTEREST

Bioinformatics, developing theories and methods in machine learning, algorithms, and optimization to solve computational problems in biology and healthcare.

PUBLICATIONS

Zhang, Y., Song, Y., & Niu, L. (2023). “Globally attracting positive periodic solution of the n-dimensional periodic Ricker system”, *Applied Mathematics Letters*, 150, 108948. (SCI, JCR Q1)

- ✧ Employed dynamical systems methods to prove that all species in the biological Ricker system converge to a periodic global attractor. These techniques have potential applications in population dynamics modelling in bioinformatics.

Xue, Z., **Zhang, Y.**, Zhang, L., & He, C. “Forecasting stock return based on multi-factor dynamic attention network”, under review.

- ✧ Developed a novel Multi-Factor Dynamic Attention Network to forecast stock price exchanges, with potential extensions for time-series biological data analysis, improving prediction accuracy in genomics and other biological datasets.

Xue, Z., Zhang, L., **Zhang, Y.**, & Chen, Y. (2022), “Study on the statistical measurement of psychological stressors of nurses under public health emergencies”, *Psychologies Magazine*, 17(19): 19-22.

- ✧ Used various statistical methods, such as Spearman Correlation, Mann-Whitney U and Factor Analysis, in R to analyse the mental pressure of nursing staff during the COVID-19 pandemic.

SKILLS

Languages: English (fluent); Chinese (native)

IT Skills: Python (proficient in TensorFlow and PyTorch), MATLAB, R, SPSS, LaTeX

Software: PyCharm, Jupyter, EndNote, Overleaf

ACADEMIC EXPERIENCE

12/2022 – 12/2023 **Interdisciplinary Cooperation on Material Performance**, Donghua University

- ✧ Established and optimized a model combining dynamic systems and machine learning to predict material performance, with potential applications in bioinformatics, such as predicting protein folding or molecular interactions.
- ✧ Collaborated with three researchers from the Department of Materials Science and Engineering.

9/2022 – 2/2023 **Undergraduate Teaching Assistant**, Donghua University

- ✧ Assisted in teaching Linear Algebra courses for undergraduates.
- ✧ Graded assignments, conducted review sessions, and supported student inquiries.

10/2021 – 6/2022 **Undergraduate Thesis on Deep Learning**, North University of China

- ✧ Applied deep learning models such as GRU-LSTM to optimize ventilator control systems, utilizing time-series data analysis methods that are transferable to analysing gene expression or other biological datasets.

3/2021 – 3/2022 **Provincial Research Project on Healthcare**, North University of China

- ✧ Used a Python web scraping program to gather information from various websites and build a knowledge graph as a large database on dietary health.
- ✧ Assisted other team members in preparing for the construction of an intelligent question-answering system.

HONORS AND AWARDS

2024 **National Scholarship**, Donghua University

2022 **Honor of Outstanding Graduate,** North University of China

2021 **Meritorious Winner,** Interdisciplinary Contest in Modeling (ICM)

2021 **First Prize (Top 1%),** National Market Research and Data Analysis Contest

2021 Third Prize, National College Student Data Mining Contest

2021 Honourable Mention, National College Student Statistical Modeling Contest

2020 **First Prize,** National College Student Data Analysis Challenge

2020 Second Prize, National College Student Data Analysis Challenge

2018-2022 **First-Class Scholarship for Elite Student,** North University of China