

YIWEI DONG

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No. 59 Zhongguancun Street, Haidian District, Beijing, China

EDUCATION

Renmin University of China, Beijing, China September 2022 - June 2025
Master of Science in Statistics, School of Statistics
Cumulative GPA: 3.94 / 4.00

Sichuan University, Chengdu, China September 2018 - June 2022
Bachelor of Science in Statistics, School of Mathematics
Honors Degree in Interdisciplinary Studies, Wu Yuzhang Honors College
Cumulative GPA: 3.92 / 4.00, Rank: 1 / 30 (Statistics Major)

University of Notre Dame, South Bend, IN, US January 2020 - May 2020
Semester Study Abroad
Cumulative GPA: 4.00 / 4.00

RESEARCH EXPERIENCE

Carnegie Mellon University, Pittsburgh, PA, US May 2024 - September 2024
Research Intern, Heinz College of Information Systems and Public Policy
Advisors: Shixiang (Woody) Zhu, Holly Wiberg
Focus: Machine Learning for Healthcare, Causal Inference, Sequential Decision Making

Renmin University of China, Beijing, China September 2022 - April 2024
Research Assistant, School of Statistics & Gaoling School of Artificial Intelligence
Advisors: Hongteng Xu, Hanfang Yang
Focus: Bayesian Methods, Machine Learning Theory, Sequential Data Modeling

PUBLICATIONS

Journal Articles (published, in revision, or submitted)

Yiwei Dong, Shaoxin Ye, Yuwen Cao, Qiyu Han, Hongteng Xu, Hanfang Yang. A Bayesian Mixture Model of Temporal Point Processes with Determinantal Point Process Prior. [*preprint*]

· A short version is accepted by NeurIPS 2024 workshop on Bayesian Decision-making and Uncertainty.

Yiwei Dong, Tingjin Chu, Lele Zhang, Hadi Ghaderi, Hanfang Yang. Pedestrian volume prediction using a Diffusion Convolutional Gated Recurrent Unit Model. [*preprint*]

Yusheng Dai, Jin Yang, **Yiwei Dong**, Haipeng Zou, Mingzhi Hu, and Bin Wang. Blind source separation-based IVA-Xception model for bird sound recognition in complex acoustic environments. *Electronics Letters* 57, no. 11 (2021): 454-456.

Conference Proceedings

Yuchao Cai, Yuheng Ma, **Yiwei Dong**, Hanfang Yang. Extrapolated Random Tree for Regression. Proceedings of the 40th International Conference on Machine Learning (ICML), PMLR 202:3442-3468, 2023.

Donglin Zhan*, Yusheng Dai*, **Yiwei Dong***, Jinghai He, Zhenyi Wang, James Anderson. Meta-adaptive stock movement prediction with two-stage representation learning. Proceedings of the 2024 SIAM International Conference on Data Mining (SDM). Society for Industrial and Applied Mathematics, 2024. (* Equal Contribution)

RESEARCH PROJECTS

Generative Dynamic Treatment Regimes

Visiting Research Intern, Carnegie Mellon University

May 2024 - September 2024

Advisors: Dr. Shixiang (Woody) Zhu, Dr. Holly Wiberg

- Conducted a comprehensive literature review on Dynamic Treatment Regimes (DTR) and causal inference, aiming to leverage offline electronic health records to support clinical decision-making; Formulated the problem as an offline sequential decision making setting with unobserved confounders.
- Wrote thousands of lines of SQL and Python code to process data from the large medical database MIMIC-IV.
- Proposed a generative DTR framework based on variational inference and conditional generative modeling.
- Gave a *poster presentation* at the YinzOR 2024 conference. [*poster*]

Event Sequence Clustering with Bayesian Mixture Model of Point Processes

Graduate Research Assistant, Renmin University of China

August 2023 - March 2024

Advisors: Prof. Hongteng Xu, Prof. Hanfang Yang

- Proposed a new Bayesian mixture model of temporal point processes for event sequence clustering and derived its posterior inference algorithm; Introduced the determinantal point process prior to yield diverse and interpretable mixture components; Designed a conditional Gibbs sampler that achieves automatic cluster number detection.
- Integrated various types of both parametric and neural point processes into the proposed mixture model. Verified the effectiveness and scalability of the model on both synthetic and real-world datasets.

Pedestrian volume prediction using a Diffusion Convolutional Gated Recurrent Unit Model

Graduate Research Assistant, Renmin University of China

January 2023 - July 2023

Advisors: Dr. Tingjin Chu, Dr. Lele Zhang, Prof. Hadi Ghaderi, Prof. Hanfang Yang

- Collated, visualized and analyzed spatiotemporal pedestrian volume data from the City of Melbourne pedestrian counting system; Identified unique temporal patterns in pedestrian flow that contributes to the prediction task.
- Proposed a diffusion convolutional recurrent neural network with dynamic time warping model that achieves superior performance compared to other spatiotemporal models across multiple accuracy metrics.

Extrapolated Random Tree for Regression

Graduate Research Assistant, Renmin University of China

September 2022 - February 2023

Advisor: Prof. Hanfang Yang

- Programmed the main algorithm of the extrapolated random tree for regression; implemented code reproduction of two regression tree algorithms and conducted comparative experiments on these tree-based models.
- Mastered several math proof techniques in machine learning theory, especially for decision tree and k -NN.
- Assisted in the proof of the upper bound of the convergence rates of extrapolated random tree for regression.

Meta-Adaptive Stock Movement Prediction with Two-Stage Representation Learning

Undergraduate Research Assistant, Columbia University (Remote)

November 2021 - September 2022

Advisor: Dr. James Anderson

- Built a framework for stock movement prediction based on self-supervised learning and meta-learning.
- Applied a contrastive learning-based method for change point detection prior to meta learning, which makes the model robust against temporal domain shift; extended the overall framework to the online learning scenario.

Blind source separation-based IVA-Xception model for bird sound recognition

Undergraduate Research Assistant, Sichuan University

September 2020 - March 2021

Advisor: Prof. Jin Yang

- Proposed to utilize the independent vector analysis algorithm in the frequency domain to separate source signals from the original multi-channel bird sound signal, improving the classification performance by 10% to 16%.

Improve the Predictability of SmartFund

Undergraduate Summer Research, University of Notre Dame

May 2020 - June 2020

Advisor: Prof. Meng Jiang

- Learned classic natural language processing methods; Applied SciBERT for text data feature extraction in order to enhance the predictability of a research outcome prediction model named SmartFund. Wrote a *project summary*.

TEACHING

Graduate Teaching Assistant, Renmin University of China

· Data Science (in English)

Fall 2023

HONORS AND AWARDS

National Scholarship (awarded for top 0.2% nationwide)

December 2023

Merit Student & First Class Fellowship, Renmin University of China

September 2023

Outstanding Student Leader, Sichuan University

September 2021

Honorable Mention, Mathematical Contest in Modeling

April 2020

SKILLS AND HOBBIES

Programming

Python (e.g., PyTorch), R, C, MATLAB, SQL, Shell, LaTeX

Selected Courses

Functional Analysis (95), Advanced Statistics (91), Deep Learning (95)

Language

Mandarin (Native), English (TOEFL 105, GRE 329)

Hobbies

Violin (Since Age 5), Table Tennis (2018 SCU Euler Cup Champion), Film