

TUORUI PENG

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Education

Doctor of Philosophy in Statistics

Department of Statistics and Data Science, Northwestern University

Sep. 2023 – Present

Evanston, IL, USA

Bachelor of Science in Mathematics and Physics

Department of Physics, Tsinghua University

Sep. 2019 – June 2023

Beijing, China

Bachelor of Science (minor) in Statistics

Department of Industrial Engineering, Tsinghua University

Mar. 2021 – June 2023

Beijing, China

Experiences

Undergraduate Dissertation

Dec. 2022 – May 2023

Center for Statistical Science, Tsinghua University

- Title: *Statistical Modeling and Inference Based on Neural Network Prediction of Gene-Expression*.
Advisor: Tianying Wang.
- We applied the Mixture Density Network to predicting the gene expression level, studied the model performance and robustness;
- We extended the Conformal Prediction framework so as to apply to construct a conformal band for the distribution function of gene expression level.

Research Assistant

June 2022 – Sept. 2022

Department of Statistics and Data Science, National University of Singapore

- Studied landscape modification in Simulated Annealing, especially on discrete Hamiltonian, to speed up sampling and optimization process;
- Focused on applicability of spin glass model and replica symmetric theory in landscape modification.

Research Assistant

Dec. 2021 – July 2022

Center for Statistical Science, Tsinghua University

- Crawled and parsed case-report articles on PubMed to form the PubMed-Center-Patient large-scale dataset of Electronic Medical Record;
- Used PMC-Patient as seed dataset to fine-tune language model for crawling the whole PubMed OA;
- Mapped the citation graph as patients link as database for retrieval system;
- Crawled and parsed medical entity relations from public medical websites to form knowledge graph.

Open Source Projects

Statistics Course Summary Note | $\text{\LaTeX}$, R

Sept. 2020 – June 2023

* A summary note for Tsinghua Univ. statistics minor courses. Latest version see
<https://v1ncent19.github.io/SummaryNotes>.

Honors & Rewards

Honorable Mention, Mathematical Contest in Modeling (2022)

Scholarship for Academic Advance (2020)

Skills

Programming: R, Python, C, $\text{\LaTeX}$, Mathematica

Languages: English (fluent), Chinese (native), Cantonese (fluent), French (beginner), Greek (beginner)