Tuorui Peng

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Education

Doctor of Philosophy in Statistics **Sep. 2023 – Present**
Department of Statistics and Data Science, Northwestern University *Evanston, IL, USA*

Bachelor of Science in Mathematics and Physics **Sep. 2019 – June 2023**
Department of Physics, Tsinghua University *Beijing, China*

Bachelor of Science (minor) in Statistics **Mar. 2021 – June 2023**
Department of Industrial Engineering, Tsinghua University *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 conctruct 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.

Student Research Training **Jan. 2021 – Nov. 2021**
Department of Physics, Tsinghua University

- Studied on heterogenous junction between metal electrode and low-dimensional semiconductor MoS_2 to explore the characteristic and production technique;
- Different processing methods and techonologies were experimented to develop a better way, obtaining heterogenous junction with more stable and ideal performance;
- Further explored the usage of low-dimensional materials in ionic micro-device.

Open Source Projects

Statistics Course Summary Note | *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, LaTeX, Mathematica
Languages: English (fluent), Chinese (native), Cantonese (fluent), French (beginner), Greek (beginner)