

Zheyuan Liu

PERSONAL INFORMATION

Zheyuan Liu
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EDUCATION

09/2019–05/2023 **B.S Computer Science, Applied Mathematics** (double-major)
Brandeis University, Waltham, MA, USA
Cumulative GPA: 3.87
Advisor: Prof. [Chuxu Zhang](#)
Relevant Courses: Deep Learning (A), Principles of Mathematical Modeling (A), Fundamentals of Software Engineering (A+), Statistical Machine Learning (A), Operating System (A-), Linear Algebra (A), Multi-variable Calculus (B+), Differential Equations (A), Probability (A)
Skills: Python, Machine Learning, Deep Learning, Java, JavaScript, HTML, CSS, SQL, Linux command

RESEARCH INTEREST

Efficient Machine Learning, Deep Learning
Graph Mining/Data Mining, Data-efficient AI
Cybersecurity

RESEARCH EXPERIENCE

06/2022–Current **Improving Generalization ability of GNN under Adversarial and Fairness Training**
Research Assitant Advised by Prof. Chuxu Zhang

- Plotted the loss landscape of GNN model under Adversarial training and Fairness data to compare the difference with regular GNN model.

- Researched about Mixture of Expert (MOE), Lottery ticket and model sparsity. Later, attempted to improve the generalization ability of GNN model under Adversarial training and Fairness data setup.
- Analyzed the new loss landscape after modification and found the possible reason of such transformation.

12/2021–06/2022 **Bridging Graph and Text for Malicious Behavior Detection on Social Media**

Research Assitant

Advised by Prof. Chuxu Zhang

- Signified harmful posts/comments manually from more than 60k posts on Twitter to be served as training samples in the fine-tuning process of the model.
- Researched about BERT (Bidirectional Encoder Representations from Transformers) and helped rebuild the baseline for the project; later fine-tuned the model to reach its best performance.
- Assisted the first author to draft a manuscript of the work and submitted to ICDM conference.

05/2021–08/2021 **Network-based virus-host interaction prediction with application to SARS-CoV-2**

Research Assitant

Advised by Prof. Pengyu Hong

- Designed the front end of the paper that displays the relationship between the protein groups of different types of coronavirus with different hosts. Further, by taking advantage of machine learning, the paper presented a prediction of other connections between those two protein groups.
- Developed the [website](#) through HTML, CSS, AJAX, Java, JQuery, etc. Imported the previous work data of the paper from [github](#). (Simple version of the [website](#))
- Updated website based on the most recent result given by the algorithm.

08/2020–12/2020 **Visualizing the COVID-19 Trend Prediction**

Research Assitant

Advised by Prof. Pengyu Hong

- Designed a [website](#) to hold data of a machine learning algorithm that predicted the COVID-19 trend based on the ground truth using Javascript, HTML, CSS, AJAX, Python.
- Pulled data from Airtable and transferred it using Python to make it compatible with the website. Later combined with front end to be user friendly.
- Co-published the [work](#) to PLOS ONE.

WORK EXPERIENCE

09/2021–Current **Brandeis University**, Waltham, MA

Teaching Assistant

- Acted as teaching assistant for Python, JAVA and Operating System class, held office hours each week helping students with programming assignments and questions about the content from the lecture.
- Assisted Professor grade assignments, exams and gave feedback to students.

06/2020–08/2020 **VeryEngine**, Hangzhou, China

Software development intern

- Utilized TypeScript and JavaScript to develop online VR showroom for different companies.
- Tested compatibility of VR Device (HTC Vive) with computers with different CPU and GPU and gave feedback on device configuration and setup.

PUBLICATIONS

1. YIFEI, W., PENG, H. M., SHA, L., LIU, Z., AND HONG, P. State-level covid-19 trend forecasting using mobility and policy data

HONORS, AWARDS & SCHOLARSHIPS

Provost's Research Fellowship (5000 dollars)

Dean's List

[Patent](#) of new type of packing tool

LANGUAGES

Mandarin (First Language)

English (TOEFL iBT: 110/120, GRE: 324/340 (V: 154, Q:170, W:4.0))

Spanish (Intermediate)

[CV compiled on August 2, 2022 for PhD application]

Waltham, MA - USA, August 2, 2022