Weihao Tu

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Education

Fudan University, School of Big Data, Shanghai, China Sep. 2023 – Present

Master's student in Applied Statistics, expected graduation June 2025

- Main courses: Concepts and Technologies of Knowledge Graphs, Data Mining, Neural Networks and Deep Learning, Social Network Analysis

Beihang University, School of Mathematical Sciences, Beijing, China Sep. 2019 – Jun. 2023

Bachelor's in Information and Computing Science

- Main courses: Basics of Computer (Python), Data Structures, Probability Theory, Mathematical Statistics, Optimization Theory and Algorithms
- GPA: 3.81/4.0, Rank: 1/10
- Honors and Awards:
  - National Scholarship (2019-2020), National Motivation Scholarship
  - First Prize in the Beijing Division of the National College Student Mathematics Modeling Competition, Honorable Mention in the American Mathematical Modeling Contest
  - School Academic Excellence Scholarship, Outstanding Student at School Level

Experience

Knowledge Graph Construction for Deep Learning Book Dec. 2023

- Workflows: Entity extraction, relationship extraction; entity cleaning, entity alignment; knowledge graph visualization.
- Utilized GPT to generate a dataset for entity extraction in the fields of mathematics/computer science, fine-tuned BERT for extraction across the entire book.
- Employed edit distance and semantic embedding as metrics, with the assistance of GPT-4 for entity alignment.
- Responsible for testing the Rebel model's extraction effects, constructing training datasets, fine-tuning BERT, and frontend visualization of the knowledge graph.

National College Student Mathematics Modeling Competition Sep. 2021

- Utilized Principal Component Analysis for supplier scoring; solved multi-objective planning problem with priority method for supplier selection; used 0-1 integer programming for the transportation scheme. Awarded First Prize in the Beijing Division.
- Responsible for data handling (Pandas), programming modeling (Matlab), completed the main part of the programming work.

Graduation Thesis on Dual Theory Training Algorithms in Deep Learning Feb. 2023 – May 2023

- Implemented an MGD algorithm for solving Minimax problems with coupled linear constraints applied to neural network training.
- Developed a problem structure for the dual problem of neural network training issues within the cut-plane algorithm, optimizing the solution process and reducing solution time by 90

Teaching Assistant

Teaching Assistant for the "Fundamentals of Computer Science (Science)" Mar. 2021 – Jul. 2021

- Number of students in the course: about 400, programming language used: Python.
- Provided weekly online and offline Q&A sessions to assist students with debugging; graded lab reports and major assignments.

Skills

- Programming: Proficient in Python, proficient in C and SQL, familiar with data structure concepts, basic automation with Bash scripting; comfortable with Linux platform.
- Machine Learning:
  - Completed Andrew Ng's Deep Learning series on Coursera and familiar with building and training neural networks using PyTorch.
  - Completed the Stanford CS229 (Machine Learning) online course, understanding theoretical foundations and implementations of common machine learning algorithms.
- Languages: English - Fluent (CET-4 590, CET-6 512), Mandarin - Native speaker.