Dexter Xu

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Research Focus

My research focuses on the application of Large Language Models (LLMs), particularly on the interaction between humans and LLMs. A key area of interest is the overconfidence exhibited by LLMs, where they may provide information with high certainty despite the potential for inaccuracy. I aim to apply LLM technology to improve human health, leveraging these models to enhance healthcare outcomes, patient experiences, and decision-making processes within the medical field. By addressing the overconfidence issue, I hope to create more reliable and trustworthy AI systems that can effectively support healthcare professionals and patients alike.

Education

UNIVERSITY OF WASHINGTON, INFORMATION SCHOOL 2022/9 – 2024/6
Master of Information Management with Specialization in Data Science Seattle, WA
- Relevant coursework: Data Science, Relational Database, Large Language Models, Machine Learning, Data Mining

UNIVERSITY OF CALIFORNIA, IRVINE 2017/09 – 2021/06
Bachelor of Science in Physics with Specialization in Computational Physics Irvine, CA
- Relevant coursework: Computer Science, Calculus and Differential Equations(ODEs,PDEs),Numerical Analysis

Honors and Awards

- Social Impact & Social Justice Award(University of Washington) 2024

Research Experience

LLM & Overconfidence 2024 – Present
Current main research Advised by: Bill Howe
- Participated in research and development activities, including comprehensive literature review, experiment design, and preliminary testing phases. Collaborated with a multidisciplinary team to investigate the differences and similarities in overconfidence between humans and large language models.
- Actively exploring on the difference and similarity of overconfidence between large language models and human in answering benchmark questions, utilizing advanced natural language processing techniques and machine learning frameworks. Engaged in data collection, analysis, and interpretation to assess the effects of fine-tuning on model performance.

Publications/Preprint

- Know Your Limits: A Survey of Abstention in Large Language Models
- Wen, Bingbing, Jihan Yao, Shangbin Feng, **Chenjun Xu**, Yulia Tsvetkov, Bill Howe, and Lucy Lu Wang.
- TACL 2024 in proceeding

- From Human to Model Overconfidence: Evaluating Confidence Dynamics in Large Language Models
- Bingbing Wen, **Chenjun Xu**, HAN Bin, Robert Wolfe, Lucy Lu Wang, Bill Howe.
- NeurIPS 2024 Workshop on Behavioral ML in proceeding

Coursework Projects

Capstone Project: AI Potential with Service Requests and Incidents 2023 – 2024
Social Impact & Social Justice Award
- Fine-tuned and Deployed Meta Llama 2 LLM Model within the Seattle Government IT infrastructure to optimize task management and streamline agenda tracking processes.
- Integrated the LLM with the department's agenda database, enabling seamless communication and data exchange between the LLM and existing database infrastructure. It is planned to allow 1000+ Seattle government employees to use LLM, with a utilization rate of 60% and a 30% improvement in work efficiency.

Graduate AI cloud service coursework 2023

- Deployed and managed an AI-driven MedCamp website using Microsoft Azure's App Service to predict individuals' health check-up needs, alleviating pressure on limited health resources.
- Established and maintained a high-availability, scalable Azure server environment for the deployed website.
- Implemented best practices for code versioning, testing, and deployment on GitHub, optimizing the development workflow and minimizing downtime.

Presentations

- iSchool Founding Board Meeting(University of Washington) 2024

Working Experience

Data Engineer at SuperMap 2021-2022

- Developed data pipelines and automation tools that saved 30% time on website data migration between multiple servers, resulting in faster project completion and increased team productivity.
- Collaborated with a cross-functional team of data scientists, engineers, and stakeholders to design and develop a smart city maps data warehouse and ETL that enabled data-driven decision-making on critical issues such as COVID-19 pandemic control, urban plumbing system, and aging population.
- Set up servers on Aliyun using Docker and migrated 1TB map data. Achieved daily warehouse data updates through writing SQL triggers. Fetched, synchronized, and updated data among several PostgreSQL and Oracle databases with Dolphin Scheduler. Exploited Python to solve data management problems and improved speed of sorting out data by 20%.