Yi Xu

Curriculum Vitae

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Education

Sep. 2023 - Now **MSc in Machine Learening**,
Department of Computer Science, University College London
Relevant subjects: Supervised Learning, Unsupervised Learning & Approximate Inference (Gatsby), Deep Learning, Reinforcement Learning (DeepMind), Statistical Natural Language Processing, Convex Optimization & RKHS in Machine Learning.

Oct. 2020 - Oct. 2021 **MSc in Computing Science**, DISTINCTION,
Department of Computing, Imperial College London
High distinction grades awarded in all taught modules and thesis
Relevant subjects: Computer Architecture, Operating Systems, Symbolic AI, Computer Vision.

Feb. 2017 - Nov. 2019 **BSc in Computing and Software Systems**, FIRST CLASS HONOURS,
Faculty of Science, University of Melbourne
Relevant subjects: Algorithms & Data Structures, Database Systems, Discrete Mathematics, Computer Networks, Artificial Intelligence, Graphics and Interaction.

Project Experiences

Mar. - Oct. 2024 **Investigating Non-Transitivity in Judge's Preferences, Dark Lab**, *University College London, UK*
- Conducted comprehensive experiments that revealed non-transitivity at instruction and model levels in pairwise comparison frameworks for LLMs, identifying its impact on model rankings.
- Introduced Soft Transitivity Deviation (STD) to quantify non-transitivity, analyzing contributing factors such as reasoning capability of the judge and position bias.
- Proposed a Round Robin Tournament with Bradley-Terry model to improve the consistency of model rankings.
- Developed dynamic matching strategies, reducing computational overhead while maintaining high correlation with full Round Robin Tournament results.

Jan. - Apr. 2024 **Retrieval-Augmented Framework for Chinese Legal QA**, *University College London, UK*
- Developed LawBot, a retrieval-augmented framework to enhance LLM performance in legal domains, addressing challenges like hallucinations and outdated data.
- Integrated Chinese legal and regulatory documents for precise information retrieval, improving the accuracy of legal advising.
- Applied multi-query generation, hybrid search strategies, metadata filtering, and reranking to boost retrieval precision and relevance.
- Created the Chinese Legal Question Answering dataset (CLQS) and fine-tuned a law-specific embedding model to improve task performance.

May. - Nov. 2021 **Gamification of Self-Attachment Therapy (SAT), Algorithmic Human Development**, *Imperial College London, UK*
- Developed a 2D adventure-action game made by Unity to integrate SAT with interactive gameplay.
- Gamified abstract therapy protocols to allow users to practice therapeutic techniques.
- Demonstrated the potential of game therapy for cost-effective, accessible treatment without physical addictions.

Skills and Interests

Hobbies	Solving problems on LeetCode
Programming	Advanced: C/C++, Python Experienced: C#, Java, Matlab
Familiar With	Hugging Face, NumPy, PyTorch, Pandas
Web	HTML/CSS/JS, Vue
Game Engine	Experience in multiple Unity game developments