Yiwen Tu

+1 (734) 877 0677 | evantu@umich.edu | tu-yiwen.github.io/evantu/ | github.com/tu-yiwen

Research Interest

Explainable Machine Learning, Trustworthy Machine Learning, Adversarial Machine Learning, Garph Learning, Cryptography

Education

MSE in Computer Science, *University of California, San Diego* | San Diego, USA | **GPA: N/A** *2024-26*
BSE in Computer Science, *University of Michigan, Ann Arbor* | Michigan, USA | **GPA: 3.95/4.0** *2022-24*
BSE in Electrical Computer Engineering, *Shanghai Jiaotong University* | Shanghai, China | **GPA: 3.73/4.0 (top 12%)** *2020-22*

Achievements: Finalists @ Mathematical Contest in Modeling 2022 | Umich Dean's List 2022-2024 | Umich University Honors 2022-2023| Shanghai Jiaotong University Undergraduate Excellence Scholarship. | UM-SJTU development scholarship

Research Experience

TRAIS lab, University of Illinois Urbana-Champaign | *Independent Researcher (Prof. Jiaqi Ma)* *May 2024 - Present*
- Established a new link between data attribution and multi-task learning (MTL), demonstrating how data attribution can efficiently measure task relatedness, a key concept in MTL.
- Introduced a scalable data attribution method called MTIF, which addresses the unique challenges of applying data attribution in MTL and provides a fine-grained analysis of data influence.
- Demonstrated the effectiveness and practical usefulness of the proposed method through extensive experiments.

TRAIS lab, University of Illinois Urbana-Champaign | *Independent Researcher (Prof. Jiaqi Ma)* *May 2023 - May 2024*
- Formalized the unlearning sample inference game and established a novel unlearning evaluation metric for data removal efficacy.
- Demonstrated several provable properties of the proposed metric, circumventing various pitfalls of existing MIA-based metrics.
- Introduced a straightforward and effective way for efficient empirical analysis. Through thorough theoretical examination and empirical experiments, we show that it exhibits similar desirable properties.
- First-authored paper submitted to top conference in machine learning.

FORESEER lab, University of Michigan, Ann Arbor | *Research Intern (Prof. Qiaozhu Mei)* *May 2022 - Sept 2022*
- Developed a contributor-friendly platform to improve curation of graph learning benchmarks, which optimizes for easy dataset maintenance, dataset usability and better contributor attributions.
- Maintained a plethora of massive datasets, including Open Graph Benchmark, MNIST, and CIFAR, which are large scale with millions of nodes and millions to billions of edges.
- Contributed to a research paper, which was accepted for oral presentation at the inaugural Learning on Graphs conference, showcasing the impact of the team's work on advancing the field of graph learning

Publication

1. **Yiwen, Tu***, Ziqi Liu*, Weijing Tang, Jiaqi Ma. "Influence Functions for Multitask Learning". In NeurIPS Workshop on Attributing Model Behavior at Scale, 2024.
2. **Yiwen, Tu***, Pingbang Hu*, and Jiaqi Ma. "Towards Reliable Empirical Machine Unlearning Evaluation: A Game-Theoretic View." arXiv preprint arXiv:2404.11577, 2024. [PDF]
3. Ma, Jiaqi*, Xingjian Zhang*, Hezheng Fan, Jin Huang, Tianyue Li, Ting Wei Li, **Yiwen Tu**, Chenshu Zhu, and Qiaozhu Mei. "Graph Learning Indexer: A Contributor-Friendly and Metadata-Rich Platform for Graph Learning Benchmarks," in Proceedings of the First Learning on Graphs Conference, 7:1–7:23. PMLR, 2022.**(Oral)** [PDF]

Teaching Experience

Grader, EECS 487 Introduction to NLP | *University of Michigan, Ann Arbor* *Sept 2023 - December 2023*
Grader, EECS 484 Database Management System | *University of Michigan, Ann Arbor* *Jan 2024 - April 2024*
Instructural Aide, Mathematical Analysis | *Shanghai Jiaotong University* *Sept 2021 - Aug 2022*

Professional Service

Conference Reviewer
- ICML 2024, Neurips ATTRIB 2024, ICLR 2025

Skills

Language Python, C/C++, C#, Java, JavaScript, CMake, SQL, MongoDB, Matlab, Git, Scripting (Bash), LaTeX, HTML, Vim, Elm
Tools Git, Linux, PyTorch, TensorFlow, Scikit-Learn, Jupyter Notebook, DGL, Docker, OpenCV, Unity Engine, Mathematica