Yu-Neng (Allen) CHUANG

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EDUCATION

Rice University — Houston, TX
Ph.D. in Computer Science (Advisor: Dr. Xia "Ben" Hu) — *Aug. 2021 - Present*

National ChengChi University (NCCU) — Taipei, Taiwan
Master of Science in Computer Science — *Feb. 2018 - Jun. 2020*

National ChengChi University (NCCU) — Taipei, Taiwan
Bachelor of Science in Mathematical Sciences — *Aug. 2013 - Jul. 2017*

RESEARCH INTERESTS AND SKILLS

Machine learning: Trustworthy issues (Uncertainty, Safety, and Explainability) on Large Language Models (LLMs), Explainable Artificial Intelligence, Healthcare AI
Data Mining: Recommender Systems, Graph Neural Network, Network Embedding

PUBLICATION

Publications

[C1] R. Tang, **Y.N. Chuang**, and X. Hu. "The Scicence of LLM-generated Text Detection" The Communications of the ACM (CACM), 2023

[C2] **Y.N. Chuang**, G. Wang et al., and X. Hu "DiscoverPath: A Knowledge Refinement and Retrieval System for Interdisciplinarity on Biomedical Research" ACM International Conference on Information and Knowledge Management (CIKM'23 Best Demo Paper Honorable Mention)

[C3] **Y.N. Chuang***, G. Wang*, F. Yang, Q. Zhou, P. Tripathi, X. Cai and X. Hu. "CoRTX: Contrastive Learning for Real-time Explanations" International Conference on Learning Representations (ICLR'23)

[C4] **Y.N. Chuang***, G. Wang*, M. Du, F. Yang, Q. Zhou, P. Tripathi, X. Cai and X. Hu. "Accelerating Shapley Explanation via Contributive Cooperator Selection" International Conference on Machine Learning (ICML'22)

[C5] **Y.N. Chuang***, C.M. Chen*, C.J. Wang, M.F. Tsai, Y. Fang, and E.P. Lim. "TPR: Text-aware Preference Ranking for Recommender Systems" ACM International Conference on Information and Knowledge Management (CIKM'20)

[C6] **Y.N. Chuang***, C.J. Wang*, C.M. Chen, and M.F. Tsai. "Skewness Ranking Optimization for Personalized Recommendation" Conference on Uncertainty in Artificial Intelligence (UAI'20 Oral)

[C7] S.C. Lin, **Y.N. Chuang***, S.F. Yang, M.F. Tsai, and C.J. Wang*. "Negative-aware Collaborative filtering" ACM Conference on Recommender Systems (RecSys'19)

[C8] **Y.N. Chuang***, Z.Y. Huang, and Y.L. Tsai. "Variational Grid Setting Network" International Conference on Asian Language Processing (IALP'17)

Preprints

[P1] **Y.N. Chuang***, R. Tang, and X. Hu. "Secure Your Model: A Simple but Effective Key Prompt Protection Mechanism for Large Language Models" (Arxiv)

[P2] **Y.N. Chuang**, R. Tang, X. Jiang, and X. Hu. "SPeC: A Soft Prompt-Based Calibration on Performance Variability of Large Language Model in Clinical Notes Summarization" (Arxiv)

[P3] **Y.N. Chuang**, G. Wang, F. Yang, Z. Liu, X. Cai, M. Du, and X. Hu. "Efficient XAI Techniques: A Taxonomic Survey" (Arxiv)

[P4] **Y.N. Chuang**, K.H. Lai, R. Tang, M. Du, C.Y. Chang, N. Zou and X. Hu. "Mitigating Relational Bias on Knowledge Graphs" (Arxiv)

[P5] C.Y. Chang, **Y.N. Chuang***, G. Wang, M. Du, and N. Zou. "DISPEL: Domain Generalization via Domain-Specific Liberating" (Arxiv)

[P6] C.Y. Chang, **Y.N. Chuang***, Z. Jiang, K.H. Lai, A. Jiang, N. Zou. "CODA: Temporal Domain Generalization via Concept Drift Simulator" (Arxiv)

[P7] C.Y. Chang, **Y.N. Chuang***, K.H. Lai, X. Han, X. Hu, N. Zou. "Towards Assumption-free Bias Mitigation" (Arxiv)

EXPERIENCE

Rice University Houston, TX
Graduate Research Assistant *Aug. 2021 - Present*

- Developed prompting and finetuning algorithms on uncertainty and safety issues of LLMs
- Built efficient explainable frameworks for generating ML models and LLMs explanation
- Developed fairness-oriented graph embedding learning framework to eliminate unfair relational biases on knowledge graphs

Samsung Research America Mountain View, CA
Research Intern *May 2023 - Aug. 2023*

- Developed an efficient algorithm of hard prompt compression on large language models, deducing the 80% of LLM API usage cost and 20% of latency of white box LLMs.

Living Analytics Research Centre., Carnegie Mellon University and SMU Singapore
Research Assistant *Jan. 2020 - Apr. 2020*

- Built a ranking method for a personalized job recommendation system with 1 million target users in Singapore, which outperformed other state-of-the-art ranking methods by 10.2%
- Developed an open-source package for textual-based recommendation systems to better exploit TB-scaled textual information with TB-scaled users' interaction information

Institute of Information Science., Academia Sinica Taipei, Taiwan
Research Assistant *Dec. 2020 - Jun. 2021*

- Developed privacy-aware recommendation systems to protect user's private information from being attacked through the API callback
- Developed a two-tower sequential based model on time series data for high-contributed customer prediction and loan prediction, which outperformed the current online model with 530% of improvement

KKBOX Co, Ltd. Taipei, Taiwan
Data Scientist Intern *Sep. 2019 - Jun. 2020*

- Developed a ranking algorithm that utilized the textual information derived from a dataset of nearly 1.5 million users to enhance the recommendation system by 15.3% compared with the prior KKTIX's ticket recommendation system and KKTV's video recommendation system
- Investigated the data distribution of the graph embedding space to improve the recommendation performance on the TB-scaled music streaming dataset, yielding up to 17.7% improvement in offline testing

OPEN SOURCE PACKAGE

SMORe: Modularize Graph Embedding for Recommendation

- *Developer.* Constructed a large-scale network embedding library for recommendation systems and network embedding algorithms which developed under C++ with multi-processing techniques
- Developed real-time online streaming service on the top of SMORe for KKBOX