Yu-Neng (Allen) CHUANG

📱 (979) 334-0045 ⬦ ✉ ynchuang@rice.edu
LinkedIn: https://www.linkedin.com/in/ync

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 (Uncertainty and Security) on Natural Language Processing, Large Language Models, Explainable Artificial Intelligence
Data Mining: Recommender Systems, Graph Neural Network, Network Embedding
Skills: Python, C++, Java, Pytorch, Keras, Tensorflow, Scikit-Learn, Numpy, Scipy, Unix/Linux

EXPERIENCE

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

- Developed the algorithms that focus on uncertainty and security issues on large language models
- Developed fairness-oriented graph embedding learning framework to eliminate unfair relational biases on knowledge graphs
- Built the efficient explainable framework for deriving model explanation

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

- Developed a algorithm for compressing chain-of-thought prompt to hard prompt on large language model, deducing the 80% of API usage cost.

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 with user financial behaviors for high-contributed customer prediction and loan prediction, which outperformed the current online model with 530% of improvement
- Developed a fast pipeline and preprocessing framework for analyzing 1.5 billion personalized transaction records containing the scale of 1.2 thousand financial features

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

PUBLICATION

Conference Publications

[C1] Ruixiang Tang, **Yu-Neng Chuang**, and Xia Hu. "The Scicence of LLM-generated Text Detection" Communications of the ACM (CACM), 2023

[C2] **Yu-Neng Chuang**, Guanchu Wang et al. "DiscoverPath: A Knowledge Refinement and Retrieval System for Interdisciplinarity on Biomedical Research" ACM International Conference on Information and Knowledge Management (CIKM'23 Demo)

[C3] **Yu-Neng Chuang***, Guanchu Wang*, Fan Yang, Quan Zhou, Pushkar Tripathi, Xuanting Cai and Xia Hu. "CoRTX: Contrastive Learning for Real-time Explanations" International Conference on Learning Representations (ICLR'23)

[C4] **Yu-Neng Chuang***, Guanchu Wang*, Mengnan Du, Fan Yang, Quan Zhou, Pushkar Tripathi, Xuanting Cai and Xia Hu. "Accelerating Shapley Explanation via Contributive Cooperator Selection" International Conference on Machine Learning (ICML'22)

[C5] **Yu-Neng Chuang***, Chih-Ming Chen*, Chuan-Ju Wang, Ming-Feng Tsai, Yuan Fang, and Ee-Peng Lim. "TPR: Text-aware Preference Ranking for Recommender Systems" ACM International Conference on Information and Knowledge Management (CIKM'20)

[C6] **Yu-Neng Chuang***, Chuan-Ju Wang*, Chih-Ming Chen, and Ming-Feng Tsai. "Skewness Ranking Optimization for Personalized Recommendation" The Conference on Uncertainty in Artificial Intelligence (UAI'20)

[C7] Sheng-Chieh Lin, **Yu-Neng Chuang**, Sheng-Fang Yang, Ming-Feng Tsai and Chuan-Ju Wang. "Negative-aware Collaborative filtering" ACM Conference on Recommender Systems (RecSys'19)

[C8] **Yu-Neng Chuang**, Zi-Yu Huang, and Yen-Lung Tsai. "Variational Grid Setting Network" International Conference on Asian Language Processing (IALP'17)

Preprints

[P1] **Yu-Neng Chuang**, Ruixiang Tang, Xiaoqian Jiang, and Xia Hu."SPeC: A Soft Prompt-Based Calibration on Performance Variability of Large Language Model in Clinical Notes Summarization" (Arxiv)

[P2] **Yu-Neng Chuang**, Guanchu Wang, Fan Yang, Zirui Liu, Xuanting Cai, Mengnan Du, and Xia Hu. "Efficient XAI Techniques: A Taxonomic Survey" (Arxiv)

[P3] **Yu-Neng Chuang**, Kwei-Herng Lai, Ruixiang Tang, Mengnan Du, Chia-Yuan Chang, Na Zou and Xia Hu. "Mitigating Relational Bias on Knowledge Graphs" (Arxiv)

[P4] Chia-Yuan Chang, **Yu-Neng Chuang**, Guanchu Wang, Mengnan Du, and Na Zou. "DISPEL: Domain Generalization via Domain-Specific Liberating" (Arxiv)

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

HONORS AND AWARDS

- **Computer Science Grant, Rice University** *Sep. 2021*
- **4th Place at ACM RecSys Challenge** *Sep. 2020*
- **Dean's List Award, NCCU** *Aug. 2020*