WEI-WEI DU

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WORK EXPERIENCE

Applied Research Scientist Oct 2023 - Recent
Sony *Tokyo, Japan*

- Develop personalization techniques, including personalization, recommender systems, and off-policy evaluation, to improve user engagement.
- Research on irregular time intervals in time-series data, and applying LLMs to recommendation tasks.
- Contribute to overseas business units through collaboration with global R&D teams.

Student Researcher Jul 2021 - Jun 2023
National Yang Ming Chiao Tung University *Hsinchu, Taiwan*

- Built a neighbor relation graph learning framework for real estate appraisal at E.SUN bank to reduce the appraiser's workload by about 80%.
- Applied explainable techniques to analyze the model behavior which helps the appraiser understand the model.
- Led a 3-member team, cooperated with the engineering team, and helped deploy the model to production.

Machine Learning Scientist Intern Jun 2022 - Nov 2022
Appier *Taipei, Taiwan*

- Implemented an ensemble real-time bidding model with new data-driven features from 10M+ e-commerce click stream data that achieved 2x performance in production.
- Conducted tree analysis and feature importance with SHAP to analyze model behavior.
- Cooperated with 3 data scientists to build the RTB model for re-engagement campaigns.

Teaching Assistant of Introduction to Artificial Intelligence Feb 2022 - Jun 2022
National Yang Ming Chiao Tung University *Hsinchu, Taiwan*

- Designed 2 real-world AI assignments including using yolov5 to detect the parking space and adopting LIME and SHAP to explore the pre-trained language model behavior.
- Gave a keynote about the progress of Explainable AI to 100+ students.

EDUCATION

Master of Data Science and Engineering, National Yang Ming Chiao Tung University Aug 2021 -
Advanced Database System Lab (Advisor: Prof. Wen-Chih Peng) Jun 2023
Research Interests: Recommender System, Natural Language Processing, Explainable AI, Self-supervised Learning

Bachelor of Quantitative Finance and Computer Science, National Tsing Hua University Sep 2017 -
Data Lab (Advisor: Prof. Shan-Hung Wu) Jun 2021
Relevant Coursework: Natural Language Processing, Deep Learning, Machine Learning, Statistical Learning, Database System, Algorithm, Data Structure

HONORS

1st Place in Multi-Modal Fact Checking @ AAAI'23 Workshop Dec 2022

- Introduced a parameter-efficient large foundation model by utilizing adapters and additional features.
- Incorporated co-attention modules for different modalities (image and text) and different types (claim and document).
- Surpassed 25.9% compared with the official baseline.

4th Place in A Rounded Evaluation of Recommender Systems @ CIKM'22 Data Challenge Sep 2022

- Built a GPU-free customizable-driven framework for fairness music recommendation.

- Designed an evaluation matric Miss Rate - Inverse Ground Truth Frequency (MR-ITF) to measure fairness.
- Outperformed the baselines by at least 197% and was selected as an oral presentation at the conference.

2nd Place in Detecting Signs of Depression from Social Media Text @ ACL'22 Workshop Feb 2022

- Developed an ensemble model with VADER and contrastive learning for detecting depression.
- Won second place in 30+ teams without any auxiliary information.

3rd Place and National Judges Award in Legal-tech Hackathon Sep 2021

- Proposed an NLP-based judgment recommendation algorithm that outperformed the current system by about 50%.
- Led an interdisciplinary team, our solution can help over 3,500 National Judges per year.

4th Place in Fake-EmoReact Challenge, SocialNLP @ NAACL'21 Workshop Jun 2021

- Compared the BERT-based model with the RNN-based model to detect fake news tweets.
- Used 5+ preprocessing techniques and ensemble strategies to improve our performance.

PUBLICATIONS

Wei-Wei Du, Takuma Udagawa, Kei Tateno, "Not Just What, But When: Integrating Irregular Intervals to LLM for Sequential Recommendation", **RecSys 2025** [Paper][Code] (acceptance rate: 20.5 %)

Wei-Wei Du, Yung-Chien Wang, Wen-Chih Peng, "EXPRESS: An LLM-Generated Explainable Property Valuation System with Neighbor Imputation", **Preprint** [Paper][Code]

Wei-Yao Wang, **Wei-Wei Du**, Derek Xu, Wei Wang, Wen-Chih Peng, "A Survey on Self-Supervised Learning for Non-Sequential Tabular Data", **ACML 2024** [Paper][Repo] (acceptance rate: 29.5 %)

Wei-Yao Wang, **Wei-Wei Du**, Wen-Chih Peng, Tsi-Ui Ik, "Benchmarking Stroke Forecasting with Stroke-Level Badminton Dataset", **IJCAI 2024 Demo** [Paper][Code]

Wei-Wei Du, Wei-Yao Wang, Wen-Chih Peng, "DoRA: Domain-Based Self-Supervised Learning Framework for Low-Resource Real Estate Appraisal", **CIKM 2023** [Paper][Blog][Code] (acceptance rate: 24.0 %)

Chih-Chia Li, Wei-Yao Wang, **Wei-Wei Du**, Wen-Chih Peng, "Look Around! A Neighbor Relation Graph Learning Framework for Real Estate Appraisal", **PAKDD 2024, AAAI 2023 MUFin Workshop [Best Paper Award]** [Paper][Blog]

Wei-Wei Du, Hong-Wei Wu, Wei-Yao Wang, Wen-Chih Peng, "Team Triple-Check at Factify 2: Parameter-Efficient Large Foundation Models with Feature Representations for Multi-Modal Fact Verification", **AAAI 2023 Defactify Workshop** [Paper][Blog][Code]

Wei-Yao Wang, **Wei-Wei Du**, Wen-Chih Peng, "RecFormer: Personalized Temporal-Aware Transformer for Fair Music Recommendation", **CIKM 2022 EvalRS Workshop** [Paper][Code]

Wei-Wei Du*, Yu-Chien Tang*, Wei-Yao Wang*, Wen-Chih Peng, "NYCU_TWD@LT-EDI-ACL2022: Ensemble Models with VADER and Contrastive Learning for Detecting Signs of Depression from Social Media", **ACL 2022 LT-EDI Workshop** (*indicates equal contribution) [Paper][Blog][Code]

SERVICES

Program Committee	CIKM 2025, CIKM 2024, CIKM 2023, LT-EDI-ACL 2022 @ ACL 2022
Student Volunteer	IJCAI 2023, KDD 2023, AAAI 2023, CIKM 2022
Organizer	Workshop on IT4PSS @ IJCAI 2024, IJCAI 2023 [Site]
	CoachAI Badminton Challenge @ IJCAI 2023 [Site]

SKILLS

Programming	Python, Linux, Shell, R, SQL, PySpark, Java, C++
Language	English (Full Professional Proficiency), Mandarin (Native)