CURRICULUM VITAE

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PERSONAL INFORMATION

Name:	Linyi Yang
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Research Interest	eXplainable AI (XAI); Trustworthy AI; NLP

Biography

Dr Linyi Yang is now working as a Research Associate at Westlake University. He has established academic reputation in Natural Language Processing and advanced eXplainable Artificial Intelligence (XAI) technologies, as evidenced by 17 publications, 10 first-author publications in high-ranked venues (5 core A* and 3 core A papers), 1 national award, 1 conference award, and 3 invited talks at advanced research institutes and companies. He has served as an Area Chair at EMNLP-22 (top-lier conference in NLP) and secured totally ~£ 370K fund. He supported 2 PhD and 5 Undergraduate students as their subject adviser or thesis supervisor.

Education History

Sep 2017 - Jul 2021 **University College Dublin (UCD), Ireland.** Ph.D. Natural Language Processing

Thesis: Deep Neural Approach for Financial Analysis.

Supervisors: Prof Barry Smyth (specialize in recommender system), Director of Insight Centre for Data Analytics, UCD, Digital Chair of Computer Science, UCD; Member of Royal Irish Academy.

Sep 2016 - Jul 2017 **University College Dublin (UCD), Ireland.** M.Sc. (Hons) Data Science.
Thesis: Distant Supervised Relation Extraction (Published).
Supervisor: Dr Ruihai Dong. (Master thesis: 94/100)

Sep 2012- Jul 2016 **Harbin Engineering University, China.** B.Sc. (Hons) Bachelor Software Engineering.

Adviser: Prof Huiqiang Wang. (Bachelor thesis: 90/100)

Research Experience

Aug 2021 - Now **Westlake University, China**. ***Research Associate***

1. Development of explainable NLP models for improving the out-of-distribution generalization. (**PI**, RMB 100 K)
2. Development of the new generation of pre-trained language models. (**CO-PI**, RMB 3 M)
   Mentor: **Prof Yue Zhang**. (Candidate of ACL-2023 President; PC Chair of EMNLP 2022)

May 2020 – Sep 2020 **Huawei Ireland AI Lab, Ireland**. **Research Intern**

1. Advanced knowledge-based deep neural methods for question answering tasks (KBQA).
   Mentor: Dr Xueming Wang. (Finished a prototype system and a US patent application)

Sep 2017 – Jul 2021 **University College Dublin, Ireland**. **Research Assistant**

1. Deep neural approach using unstructured data for financial analysis (Full PhD scholarship funded by UCD: €125 K)
2. Investigation of Financial Technology (Fintech) using artificial intelligence (Funded by Science Foundation Ireland (SFI), secured by Prof Barry Smyth: €300 K)

   Mentor: Prof Barry Smyth, Chair Professor, Insight Lab Director.

Teaching Experience

Traditional Teaching **Natural Language Processing (Guest lecturer: 2021 - 2022)**

Module: Natural Language Processing: a machine learning perspective. Level: PhD Students.

Oxford ML School (Teacher Assistant: 2021)

Module: Challenges in Natural Language Processing. Level: PhD and Industry Researchers.

Beijing-Dublin International College (BDIC Laboratory Lecturer: 2020)

Module: Databases and Info Systems. Level: Undergraduate Students.

Beijing-Dublin International College (BDIC Laboratory Lecturer: 2018 - 2019)

Module: Databases and Info Systems. Level: Undergraduate Students.

Module: Cloud Computing. Level: Undergraduate Students.

Student Supervision **PhD subject advisor at UCD for Yingjie Niu (2021)**

Thesis: Deep Neural Approach for Analyzing Financial Documents from a Causal Perspective

PhD subject advisor at UCD for Xiao Li (2021)

Thesis: Optimization of Long-form Financial Document Processing

Co-supervisor at UCD for Several Bachelor Degree Projects (2018-2021)

Project 1: Deep Learning for Explainable Stock Prediction (Zheng Zhang, now PhD at Imperial College London).

Project 2: Bitcoin Trading System based on Reinforcement Learning (Michael Jordan, now master at UCD).

Project 3: Leveraging BERT for Improving FEARS Index for Financial Risk Prediction (Su Xiong, now master at NUS).

Project 4: Hierarchical Transformer for Stock Predictions (Lirui Wei, now master at UCL).

Project 5: Auto-grading Intelligent System (Zining Wang, now master at UCL).

Pedagogical approach

Educational outreach engagement – Organized by Insight Centre, UCD.
It is becoming ever more important for scientists to be able to convey their research to a broad range of audiences. This module aims to develop skills in postgraduate students of science and technology related disciplines in a wide range of presentation styles and skills suitable for use in an outreach setting. Participants will be expected to engage in scholarly discussion with their peers on best practices from a communications and outreach perspective. https://hub.ucd.ie/usis/!W_HU_MENU.P_PUBLISH?p_tag=MODULE&MODULE=COMP41380

Professional experience

Area Chair

EMNLP-2022 (Sentiment Analysis Track);
CIKM-2022 (Short Paper Track).

Reviewer

AAAI 2022; ACL ARR Reviewer (2022); COLING 2022; SIGIR 2022.
ACL 2021; CIKM 2021; EMNLP 2021; AAAI 2021; SIGIR 2021.
CIKM 2020; COLING 2020; AAAI 2020.

Invited Reviewer

IEEE Access
ACM Transactions on Asian and Low Resource Language Information Processing
IEEE/ACM Transactions on Audio, Speech, and Language Processing (TASLP)

Active

Member of the Association for Computational Linguistics (ACL)
Member of the Institute of Electrical and Electronics Engineers (IEEE)

Awards and Honours

Mar 2022 National Scholarship for Outstanding Self-Funded Foreign Students Candidate, National Award (**Only 1 Winners in Ireland in 2022**);

Dec 2021 Outstanding Research Fellow Awarded by Westlake University, China;

Jul 2021 Excellent PhD Thesis Awarded by UCD, Ireland;

Apr 2020 Student Travel Grant, The International World Wide Web Conference;

Aug 2019 Student Travel Grant, The 28th International Joint Conference on Artificial Intelligence;

Nov 2018 Best Paper Candidate in the 5th IEEE International Conference on Cloud Computing and Intelligence Systems, CCIS 2018, Nanjing, China;

Jul 2016 Outstanding Undergraduate Thesis Awarded by University. China.

Research Output

* indicates the equal contribution; first-author h-index: 7;

Conference papers (C)

[C1] Yidong Wang, Hao Chen, Yue Fan, **Linyi Yang**, Bernt Schiele, Jindong Wang, Xing Xie, Yue Zhang and etc. A Unified Semi-Supervised Learning Benchmark. Submission to The Thirty-Sixth Annual Conference on Neural Information Processing Systems, Main Track, NeurIPS 2022, Core A* (2022).

[C2] Yaoxian Song, Penglei Sun, Pengfei Fang, **Linyi Yang**, Yanghua Xiao and Yue Zhang. Human-in-the-loop Robotic Grasping using BERT Scene Representation, Main Track, COLING 2022, Core A (2022).

[C3] **Linyi Yang**, Lifan Yuan, Leyang Cui, Wenyang Gao, Yue Zhang. FactMix: Using a Few Labeled In-domain Examples to Generalize to Cross-domain Named Entity Recognition, Main Track, COLING 2022, Core A (2022).

[C4] **Linyi Yang**, Jiazheng Li, Ruihai Dong, Yue Zhang, Barry Smyth. NumHTML: Numeric-Oriented Hierarchical Transformer Model for Multi-task Financial Forecasting, Main Track, AAAI 2022, Core A* (2022).

[C5] Jinghui Lu*, **Linyi Yang***, Brian Mac Namee, Yue Zhang. A Rationale-Centric Framework for Human-in-the-loop Machine Learning, Main Track, ACL 2022, Core A* (2022).

[C6] **Linyi Yang**, Jiazheng Li, Pádraig Cunningham, Yue Zhang, Barry Smyth, Ruihai Dong. Exploring the Efficacy of Automatically Generated Counterfactuals for Sentiment Analysis, Main Track, ACL 2021, Core A* (2021).

[C7] **Linyi Yang**, Eoin M Kenny, Tin Lok James Ng, Yi Yang, Barry Smyth, Ruihai Dong. Generating Plausible Counterfactual Explanations for Deep Transformers in Financial Text Classification, Main Track, COLING 2020, Core A (2020).

[C8] **Linyi Yang**, Tin Lok James Ng, Barry Smyth, Ruihai Dong. HTML: Hierarchical Transformer-based Multi-task Learning for Volatility Prediction, Main Track, WWW 2020, Core A* (2020).

[C9] **Linyi Yang*,** Jiazheng Li*, Barry Smyth, Ruihai Dong. MAEC: A Multimodal Aligned Earnings Conference Call Dataset for Financial Risk Prediction, Main Track, CIKM 2020, Core A (2020).

[C10] **Linyi Yang**, Yang Xu, Tin Lok James Ng, Ruihai Dong. Leveraging BERT to Improve the FEARS Index for Stock Forecasting, FinNLP Workshop, IJCAI 2019, Core A* (2019).

[C11] **Linyi Yang**, Zheng Zhang, Su Xiong, Lirui Wei, Tin Lok James Ng, Lina Xu, Ruihai Dong. Explainable Text-Driven Neural Network for Stock Prediction, Main Track, CCIS 2018, Best Paper Candiadate (2018).

[C12] **Linyi Yang**, Tin Lok James Ng, Catherine Mooney, Ruihai Dong. Multi-level attention-based neural networks for distant supervised relation extraction, Main Track, AICS 2017. (2017)

Papers under review (R)

[R1] Yile Wang, **Linyi Yang**, Zhiyang Teng, Ming Zhou and Yue Zhang. Pre-Training a Graph Recurrent Network for Language Representation. Transactions on Pattern Analysis and Machine Intelligence (TPAMI; IF: 16.39).

[R2] Generalization Challenges in NLP – A Survey from An OOD Perspective (First Author). TKDE Submission.

[R3] Towards Fine-grained Causal Reasoning and QA (First Author). TKDE Submission.

[R4] Generative Pre-trained Language Model for Document-level Open-domain Targeted Sentiment (Third Author).

[R5] Yingjie Niu*, **Linyi Yang***, Ruihai Dong, Yue Zhang. Learning to Generalize for Cross-domain QA (Submission to EMNLP 22)

[R6] Chenyang Lyu, **Linyi Yang**, Yue Zhang, Yveyye Graham, Jennifer Foster. Exploiting Rich Textual User-Product Context for Improving Sentiment Analysis (Submission to EMNLP 22)

Thesis and Technical Reports (T)

[T1] **Linyi Yang**. Deep Neural Approach for Financial Analysis. PhD Thesis, UCD. (2021)

[T2] **Linyi Yang, TLJ Ng, B Smyth, R Dong.** Fact Check: Analyzing Financial Events from Multilingual News Sources. pre-print in arxiv. (2021)

[T3] **Linyi Yang**. Distant Supervised Relation Extraction. M.Sc. Thesis, UCD. (2017)

Funding History

[F1] **CO-PI** of "The new generation of pre-trained language models" (2022-2025), **RMB 3,000,000**, funded by Zhejiang Province (Key Project);

[F2] **PI** of "Explainable NLP methods for improving the out-of-distribution generalization" (2021- 2023), **RMB 100,000**, funded by Overseas High-level Talents Program of Zhejiang Province.

[F3] **PI** of "Investigation of deep neural approach for financial market predictions" (2020), **€ 1,500**, funded by UCD Seed Funding, Insight Centre;

[F4] **PI** of "Deep neural approach for financial analysis" (2017-2021), **€ 124, 400**, full PhD scholarship funded by Science Foundation Ireland (SFI);

[F5] **Winner** of "Outstanding Self-Funded Foreign Students Candidate" (2021), **10K Dollars**, funded by NSFC.