

# Frank XING

Curriculum Vitae

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## Career Highlights

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- accumulated 10 years of experience and expertise in AI and business informatics
- authored a Springer book and 30+ peer-reviewed articles
- received 2800+ Google Scholar citations, h-index=19
- secured research fundings for 280K+ USD
- taught 10+ semesters of university courses

## Professional Appointments

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Associate Professor, Henley Business School, University of Reading Develop research and courses in AI and Digital Business	2025 - now
Assistant Professor, School of Computing, National University of Singapore Spearheaded and mentored research on AI in finance and designed a new undergraduate course	2021 - 2025
Presidential Postdoctoral Fellow, Nanyang Technological University Honored with a competitive award and developed grant management skills and research independence	2019 - 2021
Machine Learning Specialist, Continental Automotive Singapore Acted as a tech lead and mentored innovation projects in machine learning	2018 - 2019

## Academic Qualifications

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PhD in Computing and Data Science, Nanyang Technological University Ranked #12 in QS World University Rankings 2026 Thesis: Textual knowledge integration for financial asset management	2016 - 2019
BSc in Information Systems / BA in Economics, Peking University Ranked #14 in QS World University Rankings 2026 Thesis: Weakly supervised image semantic segmentation with conditional random field	2011 - 2015

## Research Publications

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### Number of citations

Web of Science	count: 1500	h-index: 14
Scopus	count: 1874	h-index: 16
Google Scholar	count: 2858	h-index: 19

### Books and chapters

1. Xing, F.; Cambria, E.; Welsch, R. E. (2019). Intelligent Asset Management. *Springer International Publishing*. ISBN: 978-3-030-30262-7.

### Referred journals

15. Xing, F. (2025). Designing heterogeneous LLM agents for financial sentiment analysis. *ACM Transactions on Management Information Systems*. 16(1), art 5, pp 1-24.

14. Wu, X.; Li, L.; Tao, X.; **Xing, F.**; and Yuan, J. (2025). Happiness prediction with domain knowledge integration and explanation consistency. *IEEE Transactions on Computational Social Systems*.
13. Du, K.; Zhao, Y.; Mao, R.; **Xing, F.**; and Cambria, E. (2025). A retrieval-augmented multi-agent system for financial sentiment analysis. *IEEE Intelligent Systems*. 40(2), pp 15-22.
12. Du, K.; Zhao, Y.; Mao, R.; **Xing, F.**; and Cambria, E. (2025). Natural language processing in finance: A survey. *Information Fusion*. 115, 102755.
11. Cesarini, M.; Malandri, L.; Pallu, F.; Seveso, A.; and **Xing, F.** (2024). Explainable AI for text classification: Lessons from a comprehensive evaluation of post hoc methods. *Cognitive Computation*. 16(6), pp 3077-3095.
10. Du, K.; **Xing, F.**; Mao, R.; and Cambria, E. (2024). Financial sentiment analysis: Techniques and applications. *ACM Computing Surveys*. 56(9), art 220, pp 1-42.
9. **Xing, F.** (2024). Financial risk tolerance profiling from text. *Information Processing & Management*. 61(4), 103704.
8. Du, K.; **Xing, F.**; and Cambria, E. (2023). Incorporating multiple knowledge sources for targeted aspect-based financial sentiment analysis. *ACM Transactions on Management Information Systems*. 14(3), art 23, pp 1-24.
7. Ma, Y.; Nguyen, K. L.; **Xing, F.**; and Cambria, E. (2020). A survey on empathetic dialogue systems. *Information Fusion*. 64, pp 50-70.
6. **Xing, F.**; Cambria, E.; and Zhang, Y. (2019). Sentiment-aware volatility forecasting. *Knowledge-Based Systems*. 176, pp 68-76.
5. **Xing, F.**; Cambria, E.; and Welsch, R. E. (2019). Growing semantic vines for robust asset allocation. *Knowledge-Based Systems*. 165, pp 297-305.
4. **Xing, F.**; Pallucchini, F.; and Cambria, E. (2019). Cognitive-inspired domain adaptation of sentiment lexicons. *Information Processing & Management*. 56(3), pp 554-564. *Honorable Mention for IP&M 2019 Best Paper Award*
3. Malandri, L.; **Xing, F.**; Orsenigo, C.; Vercellis, C.; and Cambria, E. (2018). Public mood-driven asset allocation: The importance of financial sentiment in portfolio management. *Cognitive Computation*. 10(6), pp 1167-1176.
2. **Xing, F. Z.**; Cambria, E.; and Welsch, R.E. (2018). Intelligent asset allocation via market sentiment views. *IEEE Computational Intelligence Magazine*. 13(4), pp 25-34.
1. **Xing, F. Z.**; Cambria, E.; and Welsch, R.E. (2018). Natural language based financial forecasting: A survey. *Artificial Intelligence Review*. 50(1), pp 49-73.

#### Referred conference papers

18. Du, K.; **Xing, F.**; Mao, R.; and Cambria, E. (2024). Explainable stock price movement prediction using contrastive learning. *CIKM*. Boise, USA.
17. Du, K.; Mao, R.; **Xing, F.**; and Cambria, E. (2024). A dynamic dual-graph neural network for stock price movement prediction. *IJCNN*. Yokohama, Japan.
16. Du, K.; **Xing, F.**; Mao, R.; and Cambria, E. (2024). An evaluation of reasoning capabilities of large language models in financial sentiment analysis. *IEEE CAI*. Singapore, Singapore.
15. Qi, Q. and **Xing, F.** (2023). Leveraging interactions for stationary and dynamic financial distress prediction: A spatio-temporal financial graph attention network. *ICIS*. Hyderabad, India.

14. Chen, S. and Xing, F. (2023). Understanding emojis for financial sentiment analysis. *ICIS*. Hyderabad, India.
13. Du K.; Xing, F.; Mao, R.; and Cambria, E. (2023). FinSenticNet: A Concept-Level Lexicon for Financial Sentiment Analysis. *SSCI*. Mexico City, Mexico.
12. Saha, J.; Patel, S.; Xing, F.; and Cambria, E. (2022). Does social media sentiment predict Bitcoin trading volume? *ICIS*. Copenhagen, Denmark.
11. Cambria, E.; Liu, Q.; Decherchi, S.; Xing, F.; and Kwok, K. (2022). SenticNet 7: A commonsense-based neuro-symbolic AI framework for explainable sentiment analysis. *LREC*. Marseille, France.
10. Young, T.; Xing, F.; Pandelea, V.; Ni, J.; and Cambria, E. (2022). Fusing task-oriented and open-domain dialogues in conversational agents. *AAAI*. Vancouver, Canada.
9. Xing, F.; Hoang, D.-H.; and Vo, D.-V. (2021). High-frequency news sentiment and its application to forex market prediction. *HICSS*. Online.
8. Xing, F.; Malandri, L.; Zhang, Y.; and Cambria, E. (2020). Financial sentiment analysis: An investigation into common mistakes and silver bullets. *COLING*. Online.
7. Cambria, E.; Li, Y.; Xing, F.; Poria, S.; and Kwok, K. (2020). SenticNet 6: Ensemble application of symbolic and subsymbolic AI for sentiment analysis. *CIKM*. Online.
6. Bai, H.; Xing, F.; Cambria, E.; and Huang, W.-B. (2019). Business taxonomy construction using concept-level hierarchical clustering. *FinNLP@IJCAI*. Macao, China.
5. Xing, F. Z.; Cambria, E.; Malandri, L.; and Vercellis, C. (2018). Discovering Bayesian market views for intelligent asset allocation. *ECML-PKDD*. Dublin, Ireland.
4. Xing, F. Z.; Cambria, E.; and Zou, X. (2017). Predicting evolving chaotic time series with fuzzy neural networks. *IJCNN*. Anchorage, USA.
3. Xing, F. Z.; Ho, D.; Hamzah, D.; and Cambria, E. (2017). Classifying World Englishes from a lexical perspective: A corpus-based approach. *CICLing*. Budapest, Hungary.
2. Xing, F. Z.; Cambria, E.; Huang, W.-B.; and Xu, Y. (2016). Weakly supervised semantic segmentation with superpixel embedding. *ICIP*. Phoenix, USA.
1. Xing, F. Z. and Xu, Y. (2015). A logistic regression model of irony detection in Chinese internet texts. *CICLing*. Cairo, Egypt.

#### Guest editorials

4. Xing, F.; Schuller, B.; Chaturvedi, I.; Cambria, E.; and Hussain, A. (2023). Neurosymbolic AI for sentiment analysis. *IEEE Transactions on Affective Computing*. 14(3), pp 1711-1715.
3. Cambria, E.; Xing, F.; Thelwall, M.; and Welsch, R. (2022). Sentiment analysis as a multidisciplinary research area. *IEEE Transactions on Artificial Intelligence*. 3(5), pp 638-641.
2. Malandri, L.; Porcel, C.; Xing, F.; Serrano-Guerrero, J.; and Cambria, E. (2022). Soft computing for recommender systems and sentiment analysis. *Applied Soft Computing*. 118, 108246.
1. Xing, F.; Poria, S.; Cambria, E.; and Welsch, R. (2020). Social media marketing and financial forecasting. *Information Processing & Management*. 57(5), 102314.

## Research Supervision

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### Student, program year, research title, and placement

K. Ong (2023- , PhD TAC), Explainable NLP for finance, -  
K. Du (2022-2025, PhD co-advised), Financial sentiment analysis, DBS Bank  
F. Pallucchini (2018-2019, MA), Domain adaptation of sentiment lexicons, Uni Milano-Bicocca  
I. Koh (2023-2024, BComp), Predictive text analytics on Innofund grant applications, MS Precision  
J. Sun (2023-2024, BComp), Modeling dependence structure of cryptocurrency returns, NUS  
S. Chen (2022-2023, BComp), Effects of emojis in sentiment analysis, Bybit  
T. Wee (2022-2023, BComp), Mapping ESG trends to identify investment opportunities, RSAF  
Z. Lim (2022-2023, BComp), Building a multi-agent algo-trading system, GIC

### Research assistant and placement

C. Wang (2023-2024), University of Connecticut  
X. Chen (2020-2021), University of Hong Kong

## Research Grants

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Principle Investigator, Advancing Information-intensive Financial Modeling Singapore Ministry of Education, SGD 180,000	2021 - 2024
Principle Investigator, Innovative Approaches to Portfolio Optimization NTU Presidential Postdoctoral Fellowship Research Grant, SGD 200,000	2019 - 2021
Staff, Human-Robot Collaborative AI Singapore Ministry of Trade and Industry, SGD 21,634,800	2019 - 2020
Staff, Conti+ Service Chatbot Continental Internal R&D Project, EUR 30,070	2018 - 2018
Staff, Singlish Natural Language Processing Singapore Ministry of Defence, SGD 1,254,000	2015 - 2018
Principle Investigator, Irony Detection on the Internet PKU President's Undergraduate Research Fellowship, CNY 2,000	2013 - 2014

## Invited Talks and Presentations

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7. Financial sentiment analysis: An agentic-LLM approach  
University of Essex Research Seminar, Colchester, UK, Mar 2025  
University of Reading Research Seminar, Reading, UK, Nov 2024
6. Sustainability reporting: Behaviors, textual clues, and financial effects  
A\*STAR Computational Intelligence Research Seminar, Singapore, Sep 2023  
NUS-DISA Summer Research Workshop, Singapore, Jul 2022  
University of Milano-Bicocca Research Seminar, Milan, Italy, Jun 2022
5. Financial sentiment analysis: A neurosymbolic approach  
University of Essex Research Seminar, Colchester, UK, Nov 2021
4. Financial sentiment analysis and sentiment time series  
Singapore Symposium on Sentiment Analysis, Singapore, Mar 2021  
Wuhan University of Technology Research Forum, Wuhan, China, Mar 2019
3. Three interfaces between NLP and asset allocation  
International Conference on Computational and Methodological Statistics, Virtual, Dec 2020  
Knut Wicksell Centre for Financial Studies Workshop, Lund, Sweden, Jan 2020

2. **Managing your finances with AI**  
NTU Institute of Advanced Studies Webinar, Virtual, May 2020
1. **Stock market prediction meets data quality uncertainty and high-dimensionality**  
Westlake University Research Seminar, Hangzhou, China, Oct 2019

## Teaching

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### Training and qualifications

Certificate in Case Teaching, Harvard Business Publishing Education	2025
Professional Development Programme (Teaching), National University of Singapore	2023
Certificate in University Teaching, Nanyang Technological University	2018

### Course development

IS3107 Data Engineering: designed syllabus, lecture, and tutorial contents

### Teaching experience and class size: National University of Singapore

2025S, BT4103 Business Analytics Capstone Project, 25  
 2024F, IS3107 Data Engineering, 58  
 2024S, BT4016 Risk Analytics for Financial Services, 117  
 2023F, IS3107 Data Engineering, 67  
 2023S, BT4016 Risk Analytics for Financial Services, 111  
 2022F, IS3107 Data Engineering, 55  
 2022S, IS3107 Data Engineering, 167  
 2021F, IS6000 Topics in Information Systems and Analytics Research, 11

### Teaching experience and class size: Nanyang Technological University

2021S, CZ 4034 Introduction to Information Retrieval, 143  
 2016S, CZ 2002 Object Oriented Design & Programming in Java (TA), 32

## Professional Services

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### Membership of learned societies

Senior Member, IEEE (Institute of Electrical and Electronics Engineers)	2016 - 2025
Member, AIS (Association for Information Systems)	2021 - 2025

### Journal editorship

Youth Editorial Board Member, Financial Innovation	2024 - 2026
Guest Editor, IEEE Transactions on Affective Computing	2023
Guest Editor, IEEE Transactions on Artificial Intelligence	2022
Guest Editor, Applied Soft Computing	2022
Guest Editor, Information Processing & Management	2020

### Conference chair and associate editor

Associate Editor, Pacific Asia Conference on Information Systems (PACIS)	2024
Session Chair, International Conference on Computational Linguistics (COLING)	2020

### Grant proposal reviewer

The Czech Science Foundation: Standard & Lead Projects	2021 - 2024
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### Internal/external PhD examiner

Imperial College London	2024
National University of Singapore	2022 - 2024

### Administration: NUS School of Computing

Member, Publication Ranking Committee	2021 - 2024
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