

# Bin Wang, PhD

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Website | GitHub | LinkedIn

## Research Interests

Natural Language Processing, Speech Processing, Large Language Models (LLMs), Multimodal LLMs, Machine Learning, Representation Learning.

## Education

<b>University of Southern California (USC)</b> <i>Doctor of Philosophy, Major: Electrical Engineering</i> <i>Supervisor: C.-C. Jay Kuo</i>	<i>Aug. 2017 - May. 2021</i> Los Angeles, USA
<b>University of Electronic Science and Technology of China (UESTC)</b> <i>B.Eng, Major: Electronic Information Engineering, Rank: 2/351</i>	<i>Sep. 2013 - June 2017</i> Chengdu, China
<b>City University of Hong Kong (CityU)</b> <i>Exchange Program, GPA: 4.3/4.3</i>	<i>Sep. 2015 - Jan. 2016</i> Hong Kong

## Work Experience

<b>Shanda AI Research Institute (SARI)</b> AI Research Scientist	<i>May 2025 - Present</i> Singapore
<b>Institute for Infocomm Research (I<sup>2</sup>R), A*STAR</b> Scientist, Tech Lead (Evaluation) for National Multimodal LLM Project	<i>Apr. 2023 - Apr. 2025</i> Singapore
<b>National University of Singapore (NUS)</b> Research Fellow, Supervisor: Prof. Haizhou Li	<i>Sep. 2021 - Mar. 2023</i> Singapore
<b>JD.com, Inc. AI Research Center</b> Research Intern, Supervisor: Jing Huang	<i>May 2020 - Aug. 2020</i> Mountain View, USA
<b>University of Southern California (USC)</b> Research Associate, Supervisor: C.-C. Jay Kuo	<i>Aug. 2017 - May 2021</i> Los Angeles, USA
<b>Ontario Tech University</b> Research Intern, Supervisor: Haoxiang Lang	<i>July 2016 - Oct. 2016</i> Toronto, Canada

## Research & Project Experience

<b>National Multimodal LLM, A*STAR</b> <i>Tech Lead (Evaluation), NRF Grant (S\$70M)</i>	<i>Oct 2023 - Present</i> Singapore
<ul style="list-style-type: none"><li>Leading the development of rigorous evaluation methodologies, including <b>AudioBench</b> and <b>SeaEval</b>, to ensure model performance across multiple modalities, languages, and domains.</li><li>Co-led a team of six engineers and researchers to open-source <b>MERaLiON AudioLLM</b> and the <b>Multitask National Speech Corpus</b> dataset, enabling advancements in audio-language modeling for the community.</li><li>Overseeing the creation and alignment of multimodal datasets to enhance the model's capabilities and ensure real-world applicability.</li></ul>	

## Publication (Full record: Google Scholar)

<ul style="list-style-type: none"><li><b>Bin Wang*</b>, Xunlong Zou*, Shuo Sun, Wenyu Zhang, Yingxu He, Zhuohan Liu, Chengwei Wei, Nancy F. Chen, AiTi Aw. Advancing Singlish Understanding: Bridging the Gap with Datasets and Multimodal Models, Submission to ACL 2025</li><li>Yingxu He*, Zhuohan Liu*, Shuo Sun*, <b>Bin Wang*</b>, Wenyu Zhang*, Xunlong Zou*, Nancy F. Chen, Ai Ti Aw. MERaLiON-AudioLLM: Bridging Audio and Language with Large Language Models, Submission to ACL 2025 Demo</li><li>Chengwei Wei, <b>Bin Wang</b>, Jung-jae Kim, Guimei Liu, Nancy F. Chen. CoinMath: Harnessing the Power of Coding Instruction for Math LLMs, Submission to ACL 2025</li><li><b>Bin Wang</b>, Xunlong Zou, Geyu Lin, Shuo Sun, Zhuohan Liu, Wenyu Zhang, Zhengyuan Liu, Ai Ti Aw, Nancy F. Chen. AudioBench: A Universal Benchmark for Audio Large Language Models, NAACL 2025</li><li>Wenyu Zhang, Shuo Sun, <b>Bin Wang</b>, Xunlong Zou, Zhuohan Liu, Yingxu He, Geyu Lin, Nancy F. Chen, Ai Ti Aw. MoWE-Audio: Multitask AudioLLMs with Mixture of Weak Encoders, IEEE ICASSP 2025</li><li><b>Bin Wang</b>, Geyu Lin, Zhengyuan Liu, Nancy F. Chen. CrossIn: An Efficient Instruction Tuning Approach for Cross-Lingual Knowledge Alignment, SUMEval-2, COLING 2025</li><li><b>Bin Wang</b>, Chengwei Wei, Zhengyuan Liu, Geyu Lin, Nancy F. Chen. Resilience of Large Language Models for Noisy Instructions, EMNLP Findings 2024</li></ul>	
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- Ayrton San Joaquin, **Bin Wang**, Zhengyuan Liu, Nicholas Asher, Brian Lim, Philippe Muller, Nancy F. Chen. In2Core: Leveraging Influence Functions for Coreset Selection in Instruction Finetuning of Large Language Models, EMNLP Findings 2024
- Holy Lovenia, ..., **Bin Wang**, ..., Ayu Purwarianti, Sebastian Ruder, William Tjhi. SEACrowd: A Multilingual Multimodal Data Hub and Benchmark Suite for Southeast Asian Languages, EMNLP 2024
- Yan Xiao, Yaochu Jin, **Bin Wang**, Yan Zhang, Kuangrong Hao, Haizhou Li. Zero-Shot Relation Classification Through Inference on Category Attributes, IEEE Transactions on Neural Networks and Learning Systems 2024
- **Bin Wang**, Geyu Lin, Zhengyuan Liu, Chengwei Wei, Nancy F. Chen. CRAFT: Extracting and Tuning Cultural Instructions from the Wild, C3NLP, ACL 2024. (Best Paper Award 🏆)
- **Bin Wang**<sup>\*</sup>, Zhengyuan Liu<sup>\*</sup>, Xin Huang, Fangkai Jiao, Yang Ding, Ai Ti Aw, Nancy F. Chen. SeaEval for Multilingual Foundation Models: From Cross-Lingual Alignment to Cultural Reasoning, NAACL 2024
- Yun-Cheng Wang, Xiou Ge, **Bin Wang**, C.-C. Jay Kuo. AsyncET: Asynchronous Learning for Knowledge Graph Entity Typing with Auxiliary Relations, ACM KDD 2024
- Xiou Ge, Yun-Cheng Wang, **Bin Wang**, C.-C. Jay Kuo. Knowledge Graph Embedding with 3D Compound Geometric Transformations, APSIPA TSIP 2024
- Xiou Ge, Yun-Cheng Wang, **Bin Wang**, C.-C. Jay Kuo. Knowledge Graph Embedding: An Overview, APSIPA TSIP 2024
- Ridong Jiang, Wei Shi, **Bin Wang**, Chen Zhang, Yan Zhang, Chunlei Pan, Jung Jae Kim, Haizhou Li. Speech-Aware Multi-Domain Dialogue State Generation with ASR Error Correction Modules, DSTC11, SIGDial 2023
- **Bin Wang**, Zhengyuan Liu, Nancy F. Chen. Instructive Dialogue Summarization with Query Aggregations, EMNLP 2023
- **Bin Wang**, Haizhou Li. Relational Sentence Embedding for Flexible Semantic Matching, RepL4NLP, ACL 2023
- Yun-Cheng Wang, Xiou Ge, **Bin Wang**, C.-C. Jay Kuo. GreenKGC: A Lightweight Knowledge Graph Completion Method, ACL 2023
- Xiou Ge, Yun-Cheng Wang, **Bin Wang**, C.-C. Jay Kuo. CompoundE: Compounding Geometric Operations for Knowledge Graph Completion, ACL 2023
- Chengwei Wei, Yun-Cheng Wang, **Bin Wang**, C.-C. Jay Kuo. An Overview on Language Models: Recent Developments and Outlook, APSIPA TSIP 2023
- Xiou Ge, Yun-Cheng Wang, **Bin Wang**, C.-C. Jay Kuo. TypeEA: Type-Associated Embedding for Knowledge Graph Entity Alignment, APSIPA TSIP 2023
- Chengwei Wei, **Bin Wang**, C.-C. Jay Kuo. SynWMD: Syntax-aware Word Mover's Distance for Sentence Similarity Evaluation, Pattern Recognition Letters 2023
- **Bin Wang**, Chen Zhang, Yan Zhang, Yiming Chen, Haizhou Li. Analyzing and Evaluating Faithfulness in Dialogue Summarization, EMNLP 2022
- Yiming Chen, Yan Zhang, **Bin Wang**, Zuozhu Liu, Haizhou Li. Generate, Discriminate and Contrast: A Semi-Supervised Sentence Representation Learning Framework, EMNLP 2022
- **Bin Wang**, C.-C. Jay Kuo, Haizhou Li. Just Rank: Rethinking Evaluation with Word and Sentence Similarities, ACL 2022
- Yun-Cheng Wang, Xiou Ge, **Bin Wang**, C.-C. Jay Kuo. KGBoost: A Classification-Based Knowledge Base Completion Method with Negative Sampling, Pattern Recognition Letters 2022
- Xiou Ge, Yun-Cheng Wang, **Bin Wang**, C.-C. Jay Kuo. CORE: A Knowledge Graph Entity Type Prediction Method via Complex Space Regression and Embedding, Pattern Recognition Letters 2022
- Chengwei Wei, **Bin Wang**, C.-C. Jay Kuo. Task-Specific Dependency-based Word Embedding Methods, Pattern Recognition Letters 2022
- Xie Tian, **Bin Wang**, C.-C. Jay Kuo. GraphHop: An Enhanced Label Propagation Method for Node Classification, IEEE Transactions on Neural Networks and Learning Systems 2022
- Kaitai Zhang, **Bin Wang**, C.-C. Jay Kuo. PEDENet: Image Anomaly Localization via Patch Embedding and Density Estimation. Pattern Recognition Letters 2022
- **Bin Wang**, Chen Zhang, Chengwei Wei, Haizhou Li. A Focused Study on Sequence Length for Dialogue Summarization, arXiv, 2209.11910, 2022.
- Danqing Luo, Chen Zhang, Jiahui Xu, **Bin Wang**, Yiming Chen, Yan Zhang, Haizhou Li. Enhancing Black-Box Few-Shot Text Classification with Prompt-Based Data Augmentation, arXiv 2209.11910, 2022.
- Kaitai Zhang<sup>\*</sup>, **Bin Wang**<sup>\*</sup>, Wei Wang, Fahad Sohrab, Moncef Gabbouj, C.-C. Jay Kuo. AnomalyHop: An SSL-based Image Anomaly Localization Method, IEEE VCIP 2021
- Kaitai Zhang, **Bin Wang**, Hong-Shuo Chen, Xuejing Lei, Ye Wang, C.-C. Jay Kuo. Dynamic Texture Synthesis by Incorporating Long-range Spatial and Temporal Correlations, IEEE ISSCS 2021
- **Bin Wang**, Guangtao Wang, Jing Huang, Jiaxuan You, Jure Leskovec, C.-C. Jay Kuo. Inductive Learning on Commonsense Knowledge Graph Completion, IEEE IJCNN 2021
- **Bin Wang**, C.-C. Jay Kuo. SBERT-WK: A Sentence Embedding Method by Dissecting BERT-based Word Models, IEEE/ACM Transactions on Audio, Speech, and Language Processing 2020
- **Bin Wang**, Fenxiao Chen, Yun-Cheng Wang, C.-C. Jay Kuo. Efficient Sentence Embedding via Semantic Subspace Analysis, IEEE ICPR 2020

- Fenxiao Chen, Yun-Cheng Wang, **Bin Wang**, C.-C. Jay Kuo. Graph Representation Learning: A Survey, APSIPA TSIP 2020 (Sadaoki Furui Prize Paper Award 🏆)
- **Bin Wang**<sup>\*</sup>, Angela Wang<sup>\*</sup>, Fenxiao Chen, Yun-Cheng Wang, C.-C. Jay Kuo. Evaluating Word Embedding Models: Methods and Experimental Results, APSIPA TSIP 2019 (Sadaoki Furui Prize Paper Award 🏆)
- **Bin Wang**, Fenxiao Chen, Angela Wang, C.-C. Jay Kuo, Post-Processing of Word Representations via Variance Normalization and Dynamic Embedding, IEEE ICME 2019
- Yeji Shen, Yuhang Song, Hanhan Li, Shahab Kamali, **Bin Wang**, C.-C. Jay Kuo, K-Covers for Active Learning in Image Classification, ICME 2019 Workshop
- Fenxiao Chen, **Bin Wang**, C.-C. Jay Kuo. Deepwalk-Assisted Graph PCA (DGPCA) for Language Networks, IEEE ICASSP 2019
- **Bin Wang**, Yunze Li, Haoxiang Lang, Ying Wang. Hand Gesture Recognition and Motion Estimation using the Kinect Sensor, Mechatronic Systems and Control 2019
- Fenxiao Chen, **Bin Wang**, C.-C. Jay Kuo. Graph-Based Deep-Tree Recursive Neural Network (DTRNN) for Text Classification, IEEE SLT 2018

## Academic Service

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- **Area Chair**, ACL Rolling Review, 2025
- **Lead Guest Editor**, APSIPA TSIP Special Issue on Pre-trained Large Language Models for Information Processing, 2024
- **Publication Chair**, EMNLP 2023, Singapore
- **Local Organizing Team**, EMNLP 2023, Singapore
- **Editor Board Member**, APSIPA TSIP, 2022-2025
- **Session Chair**, Data Mining and Knowledge Discovery I, IJCNN, 2021
- **Reviewer**, ACL Rolling Review, ACL, NAACL, EMNLP, ICASSP, IEEE/ACL TASLP, ICME, etc.

## Teaching Experience

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### Teaching Assistant | University of Southern California

**Scope:** Lead discussion, lectures, tutorials, and host office hours. 20 hours/week.

- **Course:** Applied and Cloud Computing for Electrical Engineers

*Spring 2021*

Instructor: Brandon Franzke

- **Course:** Applied Linear Algebra for Engineering

*Fall 2020*

Instructor: Antonio Ortega

- **Course:** Computer Programming for Electrical Engineers

*Spring 2020*

Instructor: Sandeep Gupta

- **Course:** Introduction to Digital Signal Processing

*Spring 2019, Fall 2018*

Instructor: Richard Leahy, Robert Popoli

## Honors & Awards

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- Best Paper Award, Workshop on Cross-Cultural Considerations in NLP (C3NLP), co-located with ACL, 2024
- Sadaoki Furui Prize Paper Award, APSIPA, 2024
- Sadaoki Furui Prize Paper Award, APSIPA, 2022
- GSG Research Travel Grant, USC, 2019
- Excellent Graduate (<1%), Sichuan, China, 2017
- National Scholarship (<2%), Sichuan, China, 2016
- Tanglixin Scholarship, Sichuan, China, 2016
- National Scholarship (<2%), Sichuan, China, 2015
- Samsung Scholarship, China, 2015
- Student Leadership Award, China, 2014

## Skills

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**Proficient:** *Python, PyTorch, L<sup>A</sup>T<sub>E</sub>X*

**Intermediate:** *C++, TensorFlow, HTML*

**Open-Source Projects:** <https://github.com/BinWang28>

**Languages:** Mandarin (Native) and English (Professional)