

Bin Wang

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About Me

A proven AI scientist and AGI researcher with a Ph.D. from USC, specializing in pioneering general multimodal agentic workflows and long-term memory systems at MiroMind. My expertise in large language models for dialogue and speech is backed by a publication record of over 40 papers in top-tier conferences like ACL and EMNLP. As an advocate for open source, I've built a strong community presence, with my projects gaining over 2,000 stars on GitHub.

Education

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

Work Experience

MiroMind.ai AI Research Scientist	<i>May 2025 - Present</i> Singapore
Institute for Infocomm Research (I²R), A*STAR Scientist, Tech Lead for National Multimodal LLM Project	<i>Apr. 2023 - Apr. 2025</i> Singapore
National University of Singapore (NUS) Research Fellow, Advisor: Haizhou Li (IEEE Fellow)	<i>Sep. 2021 - Mar. 2023</i> Singapore
JD.com, AI Research USA Research Intern, Advisor: Jing Huang, Guangtao Wang	<i>May 2020 - Aug. 2020</i> Mountain View, USA
University of Southern California (USC) Research Associate, Advisor: C.-C. Jay Kuo	<i>Aug. 2017 - May 2021</i> Los Angeles, USA
Ontario Tech University Research Intern, Advisor: Haoxiang Lang	<i>July 2016 - Oct. 2016</i> Toronto, Canada

Highlighted Projects

Deep Research Agent and AGI, MiroMind Lead (Framework) Team of 5-10 <ul style="list-style-type: none">Pioneered the development of open-source agentic foundation platform - MiroFlow and agentic foundation model - MiroThinker for intelligent decision-making that combines reasoning, long-term memory, and agentic workflows to handle multi-step tasks.Developed model and workflow has topped in multiple highly competitive agentic benchmarks, including GAIA, HLE, BrowseComp, FutureX, and others.The open-source project has achieved over 500 stars within 2 months and has been deployed for internal products.For reasoning models, we released MiroMind-M1 models and a survey.	<i>May 2025 - Now</i> Singapore, Global
Speech and Audio LLM, A*STAR, Singapore National LLM Project (\$\$70 Million) (Co-)Lead (Data, Evaluation, Training) Team of 6 <ul style="list-style-type: none">Leading the development of rigorous evaluation methodologies, including AudioBench and SeaEval, to ensure robust model performance across speech processing, language understanding, and localized applications.Developed open-source MERaLiON AudioLLM, with hands-on experience in large-scale training using over 200 H100 GPUs (over 10k model downloads each month).Led data cleaning, preparation, and open-sourcing of Singlish speech understanding datasets, designing multimodal alignment to advance audio-language modeling for real-world and industry applications (over 50k downloads each month).	<i>Oct 2023 - April 2025</i> Singapore

Teaching Experience

Teaching Assistant University of Southern California Mentored students and enhanced course comprehension by developing and delivering weekly lectures, tutorials, and office hours. 20 hours a week. <ul style="list-style-type: none">Applied and Cloud Computing for Electrical Engineers (Graduate Level Course) (Spring 2021)Applied Linear Algebra for Engineering (Year 1-2 Undergrad.) (Fall 2020)Computer Programming for Electrical Engineers (Year 1-2 Undergrad.) (Spring 2020)Introduction to Digital Signal Processing (Year 4 Undergrad and Graduate Students.) (Spring 2019, Fall 2018)	<i>Fall 2018 - Spring 2021</i>
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Honors & Awards

- **Best Paper Award** (\$300), SUMEval Workshop, COLING 2025
- **Sadaoki Furui Prize Paper Award** (\$1000), APSIPA, 2024
- **Best Paper Award** (\$200), C3NLP Workshop, ACL, 2024
- **Sadaoki Furui Prize Paper Award** (\$1000), APSIPA, 2022
- **GSG Research Travel Grant**, USC, 2019
- **Starlight EEE Student** (1/600), School of Electrical Engineering, UESTC, 2017
- **Excellent Graduate of Sichuan Province** (<1%), China, 2017
- **National Scholarship**, (<2%), China, 2016
- **Tanglixin Scholarship** (¥10,000 yearly), 2016
- **National Scholarship** (<2%, ¥8000), China, 2015
- **Samsung Scholarship** (¥5000), UESTC, 2015
- **Student Leadership Award**, UESTC, 2014

Publications (15+ First Authored Publications, Full record: Google Scholar)

- Xingxuan Li*, Yao Xiao*, Dianwen Ng*, Hai Ye*, Yue Deng*, Xiang Lin*, **Bin Wang***, Zhanfeng Mo, Chong Zhang, Yueyi Zhang, Zonglin Yang, Ruilin Li, Lei Lei, Shihao Xu, Han Zhao, Weiling Chen, Feng Ji, Lidong Bing. MiroMind-M1: An Open-Source Advancement in Mathematical Reasoning via Context-Aware Multi-Stage Policy Optimization, Technical Report, 2025
- Yiming Gao, **Bin Wang**, Chengwei Wei, Shuo Sun, AiTi Aw. IFEval-Audio: Benchmarking Instruction-Following Capability in Audio-based Large Language Models, ArXiv and Under Review 2025
- Chengwei Wei, **Bin Wang**, Jung-jae Kim, Nancy F. Chen. Towards Spoken Mathematical Reasoning: Benchmarking Speech-based Models over Multi-faceted Math Problems, ArXiv and Under Review 2025
- Chong Zhang*, Yue Deng*, Xiang Lin*, **Bin Wang***, Dianwen Ng, Hai Ye, Xingxuan Li, Yao Xiao, Zhanfeng Mo, Qi Zhang, Lidong Bing. 100 Days After Deepseek-R1: A Survey on Replication Studies and More Directions for Reasoning Language Models, Technical Survey, 2025
- Wenyu Zhang, Yingxu He, Geyu Lin, Zhuohan Liu, Shuo Sun, **Bin Wang**, Xunlong Zou, Jeremy H. M. Wong, Qiongqiong Wang, Hardik B. Sailor, Nancy F. Chen, Ai Ti Aw. Beyond Classification: Towards Speech Emotion Reasoning with Multitask AudioLLMs, ArXiv and Under Review 2025
- Jeremy H. M. Wong, Muhammad Huzaifah, Hardik B. Sailor, Shuo Sun, Kye Min Tan, **Bin Wang**, Qiongqiong Wang, Wenyu Zhang, Xunlong Zou, Nancy F. Chen, Ai Ti Aw. Diversity and Complementarity of Speech Encoders across Diverse Tasks in a Multi-modal Large Language Model, ASRU 2025
- Yizhou Peng, **Bin Wang**, Yi-Wen Chao, Ziyang Ma, Haoyang Zhang, Hexin Liu, Xie Chen, Eng Siong Chng. NTU Speechlab LLM-Based Multilingual ASR System for Interspeech MLC-SLM Challenge 2025, MLC-SLM Challenge, Interspeech 2025
- Samuel Cahyawijaya, Holy Lovenia, ..., **Bin Wang**, ..., Peerat Limkonchotiwat. Crowdsourcing, Crawl, or Generate? Creating SEA-VL, a Multicultural Vision-Language Dataset for Southeast Asia, ACL 2025
- Shuanghong Huang, Chong Feng, Xiang Lin, **Bin Wang**, Yuhang Guo, Ming Yan, Hao Wu. Optimizing Cross-Modality Alignment Module for Audio Large Language Models, Data Intelligence, 2025
- **Bin Wang***, Xunlong Zou*, Shuo Sun, Wenyu Zhang, Yingxu He, Zhuohan Liu, Chengwei Wei, Nancy F. Chen, AiTi Aw. MNSC: Advancing Singlish Speech Understanding with Carefully Curated Corpora, ASRU 2025
- Yingxu He*, Zhuohan Liu*, Shuo Sun*, **Bin Wang***, Wenyu Zhang*, Xunlong Zou*, Nancy F. Chen, Ai Ti Aw. MERaLiON-AudioLLM: Advancing Speech and Language Understanding for Singapore, ACL 2025
- Chengwei Wei, **Bin Wang**, Jung-jae Kim, Guimei Liu, Nancy F. Chen. CoinMath: Harnessing the Power of Coding Instruction for Math LLMs, ACL Findings 2025
- **Bin Wang**, 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
- Wenyu Zhang, Shuo Sun, **Bin Wang**, 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
- Geyu Lin, **Bin Wang**, Zhengyuan Liu, Nancy F. Chen. CrossIn: An Efficient Instruction Tuning Approach for Cross-Lingual Knowledge Alignment, SUMEval-2, COLING 2025 (**Best Paper Award** 🏆)
- **Bin Wang**, Chengwei Wei, Zhengyuan Liu, Geyu Lin, Nancy F. Chen. Resilience of Large Language Models for Noisy Instructions, EMNLP Findings 2024
- 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***, Zhengyuan Liu*, 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*, **Bin Wang***, 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, Jiakuan 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***, Angela Wang*, 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 Services

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

Skills

Proficient: *Python, PyTorch, L^AT_EX*

Intermediate: *C++, TensorFlow, HTML*

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

Languages: Mandarin (Native) and English (Professional)