Jiawen Kang

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ERB 503
The Chinese University of Hong Kong
Shatin, N.T.
Hong Kong SAR

PARTICULARS

EDUCATION

The Chinese University of Hong Kong   Hong Kong SAR, China
Ph. D. in Information System   *Sep. 2021 - Jul. 2025 (Exp.)*

Jilin University   Changchun, China
B. Eng. in Electrical Engineering   *Sep. 2015 - Jul. 2019*

RESEARCH INTERESTS

I am extensively interested in modeling speech and natural languages, including speech/speaker recognition, speech/text classification, and conversational human-computer interaction. Currently, my work focuses on understanding clinical conversations (using both speech & text).

RESEARCH HIGHLIGHTS

- My co-first authored work received the ISCA Award for the Best Paper Published in Speech Communication (2019-2023). Title: "CN-Celeb: multi-genre speaker recognition"

- My conference paper "CN-Celeb: a challenging Chinese speaker recognition dataset" is on the list of Google Scholar Metrics 2024.

- I published 26 papers in top speech conferences/journals, including 7 first-author works and 9 second-author works.

- I have extensive research and development experience in speech and neural language processing, including speech/speaker recognition, conversational diagnostics, speech generation, and human-computer interaction.

EXPERIENCES

Research Assistant, The Chinese University of Hong Kong   *Nov. 2020 - Jul. 2021*
Human-Computer Communications Laboratory, Advisor: Prof. Helen Meng

- Research on human-computer interaction for spoken dialogue agents
- Developed automatic transcription pipeline based on speaker diarization and speech recognition

Research Assistant, Tsinghua University   *Sep. 2019 - Oct. 2020*
Center for Speech and Language Technologies, Advisor: Prof. Dong Wang

- Research on robust speaker recognition

Research Intern, Jilin University *Nov. 2017 - Nov. 2018*
College of Instrumentation and Electrical Engineering, Advisor: Prof. Tianyu Zhang

- Research on signal processing algorithms for fiber-optical sensing
- Developed a gas sensor based on tunable diode laser absorption spectroscopy technology

PROJECTS

Research Grants Council (UGC) Theme-Based Research (T45-407/19N) *Sep. 2021 - Now*
Main Contributor

- Research on extracting and identifying spoken language biomarkers for neurocognitive disorders

Talktive: a Conversational Agent Using Backchannels to Engage Elderly in Speaking, The Chinese University of Hong Kong *Nov. 2020 - Aug. 2021*
Main Contributor

- Designed and implemented algorithms for backchanneling in a spoken conversational agent
- Developed back-end algorithms for spoken conversational agents
- Led a user studies team to elicit feedback from older adults

Cross-Devices Speaker Recognition Project, Tsinghua University *Dec. 2019 - Sep. 2020*
Main contributor

- Investigated on statistical mismatch problem in cross-device speaker recognition

CN-Celeb: Multi-Genre Speaker Recognition, CSLT@Tsinghua University *Sep. 2019 - Nov. 2020*
Main contributor

- Collected web-scale speaker recognition corpus with 3,000 speakers and 11 different genres
- Investigated on robust algorithm for multi-genre speaker recognition

An End-to-End Chinese Speech Synthesis System, Jilin University *Jan. 2019 - Apr. 2020*
Individual final-year project

- Developed a Chinese text-to-speech PC software comprising a front-end GUI and back-end text-to-speech algorithms

Optical Fiber Methane Gas Sensor, Jilin University *May. 2017 - Apr. 2018*
Team Leader

- Developed an optical fiber methane gas sensor based on Tunable Diode Laser Absorption Spectroscopy
- Investigated state-of-the-art signal processing algorithms for optical signal in sensors

High-speed Time-interleaved ADCs based on FPGA, Jilin University *Jul. 2017 - Aug. 2018*
Individual summer project

- Proposed a distributed read/write algorithm incorporating time-interleaved ADCs on FPGA chips

AWARDS AND HONORS

- ISCA Award for the Best Paper Published in Speech Communication (2019-2023)   2024
- Most Cited Article of Speech Communication   2022
- Postgraduate Studentship   2021
- Jilin University Scholarship   2018
- National-level project of the National University Student Innovation and Entrepreneurship Development Program   2018
- Jilin University Individual Scholarship   2017
- 3rd prize of Electronics Design Contest, Jilin University   2017

ACTIVITIES

INVITED TALKS

- *"Talktive: a Conversational Agent Using Backchannels to Engage Elderly in Speaking"*, CSLT, Tsinghua University

ACADEMIC SERVICE

- **Reviewer** - ICASSP 2025, IJCNN 2025, SLT 2024
- **Organizing** - Associate Organizing Chair of 2023 International Doctoral Forum, 2-4 Dec. 2023, Hong Kong SAR

CONFERENCE PRESENTATIONS

- *"Not All Errors Are Equal: Investigation of Speech Recognition Errors in Alzheimer's Disease Detection"*, in IEEE ISCSLP 2025, Beijing
- *"Integrated and enhanced pipeline system to support spoken language analytics for screening neurocognitive disorders"*, in INTERSPEECH 2023, Dublin
- *"The defender's perspective on automatic speaker verification: An overview"*, in IJCAL DADA 2023, Macao
- *"Domain-Invariant Speaker Vector Projection by Model-Agnostic Meta-Learning"*, in INTERSPEECH 2020, Shanghai

CHALLENGE

- **Ranked 2/14**, 2022 ICASSP M2MeT challenge Track 1

OPEN SOURCE

- Code - Speaker-aware CTC
  Link: *https://github.com/kjw11/Speaker-Aware-CTC*

- Code - Cross-speaker network
  Link: *https://github.com/kjw11/CSEnet-ASR*

- Corpus - CN-Celeb1 & CN-Celeb2
  Link: *https://openslr.org/82*

- Code - RobustMAML
  Link: *https://github.com/kjw11/MAML-Speaker*

- Code - Kaldi speaker recognition recipe
  Link: *https://github.com/kaldi-asr/kaldi/tree/master/egs/cnceleb*

TEACHING

- Teaching assistant, SEEM2460 Introduction to Data Science, The Chinese University of Hong Kong
  (2024-2025 Term 2, 2023-2024 Term 2, 2022-2023 Term 2, 2021-2022 Term 2)

- Teaching assistant, ENGG2780 Statistics for Engineers, The Chinese University of Hong Kong
  (2022-2023 Term 2, 2021-2022 Term 2)

- Undergraduate Student Mentor, Department of SEEM, The Chinese University of Hong Kong
  (2024-2025 Term 1)

PATENT

- Method and System for Text-To-Speech   Hong Kong Short-Term Patent

PUBLICATIONS

CONFERENCE PAPERS

1. **Jiawen Kang**, Dongrui Han, Lingwei Meng, Jingyan Zhou, Jinchao Li, Xixin Wu, Helen Meng. "Towards Within-class Variation in Alzheimer's Disease Detection from Spontaneous Speech", *Submitted to INTERSPEECH 2025*

2. **Jiawen Kang**, Lingwei Meng, Mingyu Cui, Yuejiao Wang, Xixin Wu, Xunying Liu, Helen Meng. "Disentangling Speakers in Multi-Talker Speech Recognition with Speaker-Aware CTC", *Accepted by ICASSP 2025*

3. Lingwei Meng, Shujie Hu, **Jiawen Kang**, Zhaoqing Li, Yuejiao Wang, Wenxuan Wu, Xixin Wu, Xunying Liu, Helen Meng. "Large Language Model Can Transcribe Speech in Multi-Talker Scenarios with Versatile Instructions", *Accepted by ICASSP 2025*

4. Mingyu Cui, Yifan Yang, Jiajun Deng, **Jiawen Kang**, Shujie Hu, Tianzi Wang, Zhaoqing Li, Shiliang Zhang, Xie Chen, Xunying Liu. "Exploring SSL Discrete Speech Features for Zipformer-based Contextual ASR", *Submitted to INTERSPEECH 2025*

5. Lingwei Meng, **Jiawen Kang**, Yuejiao Wang, Zengrui Jin, Xixin Wu, Xunying Liu, Helen Meng. "Empowering whisper as a joint multi-talker and target-talker speech recognition system", *Proc. Interspeech 2024, 4653-4657, doi: 10.21437/Interspeech.2024-971*

6. **Jiawen Kang**, Junan Li, Jinchao Li, Xixin Wu, Helen Meng. "Not All Errors Are Equal: Investigation of Speech Recognition Errors in Alzheimer's Disease Detection", *ISCSLP 2024*

7. Dongrui Han, Mingyu Cui, **Jiawen Kang**, Xixin Wu, Xunying Liu, Helen Meng. "Improving Grapheme-to-Phoneme Conversion through In-Context Knowledge Retrieval with Large Language Models", *ISCSLP 2024*

8. **Jiawen Kang**, Lingwei Meng, Mingyu Cui, Haohan Guo, Xixin Wu, Xunying Liu, Helen Meng. "Cross-Speaker Encoding Network for Multi-Talker Speech Recognition." *In ICASSP 2024-2024 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), pp. 11986-11990. IEEE, 2024.*

9. Mingyu Cui, **Jiawen Kang**, Jiajun Deng, Xi Yin, Yutao Xie, Xie Chen, Xunying Liu. "Towards Effective and Compact Contextual Representation for Conformer Transducer Speech Recognition Systems." *Proc. INTERSPEECH 2023, 2223-2227, doi: 10.21437/Interspeech.2023-552.*

10. Lingwei Meng, **Jiawen Kang**, Mingyu Cui, Haibin Wu, Xixin Wu, Helen Meng. "Unified Modeling of Multi-Talker Overlapped Speech Recognition and Diarization with a Sidecar Separator." *Proc. INTERSPEECH 2023, 3467-3471, doi: 10.21437/Interspeech.2023-1422.*

11. Lingwei Meng, **Jiawen Kang**, Mingyu Cui, Yuejiao Wang, Xixin Wu, Helen Meng. "A Sidecar Separator Can Convert A Single-Talker Speech Recognition System to A Multi-Talker One." *In ICASSP 2023-2023 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), pp. 1-5. IEEE, 2023.*

12. Haibin Wu, **Jiawen Kang**, Lingwei Meng, Helen Meng, Hung-yi Lee. "The defender's perspective on automatic speaker verification: An overview." *In IJCAI 2023 DADA Workshop.*

13. Helen Meng, Brian Mak, Man-Wai Mak, Helene Fung, Xianmin Gong, Timothy Kwok, Xunying Liu, Vincent Mok, Patrick Wong, Jean Woo, Xixin Wu, Ka Ho Wong, Sean Shensheng Xu, Naijun Zheng, Ranzo Huang, **Jiawen Kang**¶, Xiaoquan Ke, Junan Li, Jinchao Li, Yi Wang. "Integrated and enhanced pipeline system to support spoken language analytics for screening neurocognitive disorders." *Proc. INTERSPEECH 2023, 1713-1717, doi: 10.21437/Interspeech.2023-2249.* (¶presenter)

14. Haibin Wu, **Jiawen Kang**, Lingwei Meng, Yang Zhang, Xixin Wu, Zhiyong Wu, Hung-yi Lee, Helen Meng. "Tackling spoofing-aware speaker verification with multi-model fusion." *Proc. The Speaker and Language Recognition Workshop (Odyssey 2022), 92-99, doi: 10.21437/Odyssey.2022-13.*

15. Naijun Zheng, Na Li, Xixin Wu, Lingwei Meng, **Jiawen Kang**, Haibin Wu, Chao Weng, Dan Su, Helen Meng. "The cuhk-tencent speaker diarization system for the icassp 2022 multi-channel multi-party meeting transcription challenge." *In ICASSP 2022-2022 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), pp. 9161-9165. IEEE, 2022.*

16. Zijian Ding, **Jiawen Kang**, Tinky Oi Ting Ho, Ka Ho Wong, Helene H Fung, Helen Meng, Xiaojuan Ma. "TalkTive: a conversational agent using backchannels to engage older adults in neurocognitive disorders screening." *In Proceedings of the 2022 CHI conference on human factors in computing systems, pp. 1-19. 2022.* **(Full paper)**

17.   Haibin Wu, Lingwei Meng, **Jiawen Kang**, Jinchao Li, Xu Li, Xixin Wu, Hung-yi Lee, Helen Meng. "Spoofing-Aware Speaker Verification by Multi-Level Fusion." *Proc. Interspeech 2022, 4357-4361, doi: 10.21437/Interspeech.2022-920.*

18.   Lantian Li, Yang Zhang, **Jiawen Kang**, Thomas Fang Zheng, Dong Wang. "Squeezing value of cross-domain labels: A decoupled scoring approach for speaker verification." *In ICASSP 2021-2021 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), pp. 5829-5833. IEEE, 2021.*

19.   **Jiawen Kang**, Ruiqi Liu, Lantian Li, Yunqi Cai, Dong Wang, Thomas Fang Zheng. "Domain-invariant speaker vector projection by model-agnostic meta-learning." *Proc. Interspeech 2020, 3825-3829, doi: 10.21437/Interspeech.2020-2562.*

20.   Yue Fan, **Jiawen Kang**, Lantian Li, KC Li, HL Chen, ST Cheng, PY Zhang, ZY Zhou, YQ Cai, Dong Wang. "Cn-celeb: a challenging chinese speaker recognition dataset." *In ICASSP 2020-2020 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), pp. 7604-7608. IEEE, 2020.*

JOURNAL ARTICLES

21.   Jinchao Li*, Yuejiao Wang*, Junan Li*, **Jiawen Kang***, Bo Zheng, Simon Wong, Manwai Mak, Brian Mak, Xixin Wu, Xunying Liu, Helen Meng. "Detecting Neurocognitive Disorders through Analyses of Topic Evolution and Cross-modal Consistency in Visual-Stimulated Narratives", *Submitted to IEEE Journal of Selected Topics in Signal Processing* (*equal contribution)

22.   Jingyan Zhou, Kun Li, Junan Li, **Jiawen Kang**, Minda Hu, Xixin Wu, Helen Meng. "Purple-teaming LLMs with Adversarial Defender Training." *Submitted to Transactions of the Association for Computational Linguistics.*

23.   Haohan Guo, Fenglong Xie, **Jiawen Kang**, Yujia Xiao, Xixin Wu, Helen Meng. "QS-TTS: Towards Semi-Supervised Text-to-Speech Synthesis via Vector-Quantized Self-Supervised Speech Representation Learning." *IEEE/ACM Transactions on Audio, Speech, and Language Processing (2024).*

24.   Lantian Li, Dong Wang, **Jiawen Kang**, Renyu Wang, Jing Wu, Zhendong Gao, Xiao Chen. "A principle solution for enroll-test mismatch in speaker recognition." *IEEE/ACM Transactions on Audio, Speech, and Language Processing 30 (2022): 443-455.*

25.   Lantian Li*, Ruiqi Liu*, **Jiawen Kang***, Yue Fan, Hao Cui, Yunqi Cai, Ravichander Vipperla, Thomas Fang Zheng, Dong Wang. "Cn-celeb: multi-genre speaker recognition." *Speech Communication 137 (2022): 77-91.* (*equal contribution)

26.   Tianyu Zhang, **Jiawen Kang**†, Dezhuang Meng, Hongwei Wang, Zhengming Mu, Meng Zhou, Xiaotong Zhang, Chen Chen. "Mathematical Methods and Algorithms for Improving Near-Infrared Tunable Diode-Laser Absorption Spectroscopy." *Sensors 18, no. 12 (2018): 4295.* († first student author)