

Kaisheng Yao

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Research and Development Interests

- Multi-Modal, including vision, language, reasoning and knowledge
- Natural Language Processing including understanding, generation, dialogue, and translation
- Speech Recognition and Speaker Identification
- Machine Learning Algorithms and Platform Development

Work Experience

Senior Staff Engineer

Nov/2016 – Present

Ant Group, Bellevue WA

- Multi-modal machine learning algorithms & framework development
- Lead small team for research & development & shipping products for block-chain, insurance, and security
- Individual contributor to ship dialogue systems for automatic customer services with billions of users
- Original contributions with publications in top conferences including ACL, AAAI and ASRU

Researcher

Feb/2008 – July/2016

Microsoft Research, 1 Microsoft Way, Redmond, WA 98052

- Invented novel neural network models for conversation and understanding that achieved best performance of grapheme-to-phoneme conversion and applied to language understanding tasks
- Developed deep learning platform for fast recurrent models and language understanding with focus on recurrent models and language understanding
- Participated Jelinek summer workshop on wide-band machine translation, published papers in NAACL, ICASSP, InterSpeech
- Awarded Microsoft Research Technology Transfer Award for contributions of recurrent models for language understanding to Bing search and relevance, smart watch, and speech recognition
- Large-scale automatic speech recognition for voice-mail transcriptions

Member of Technical Staff

July/2004 – Feb/2008

Texas Instruments, 12500 TI Boulevard, MS 8649, Dallas, TX 75243

- Developed and researched speech recognition systems on low footprint and limited power mobile devices for using under adverse conditions as in mobile environments, small foot-print solutions, dynamic vocabulary&grammar, and multiple language recognition

Honors

IEEE Signal Processing Society Best Paper Award for publication at IEEE Trans. On Audio, Speech, and Language Processing in 2015 2021

NLPCC Best Paper Award 2015

IEEE Senior Member

Education

Ph.D. Electrical Engineering

June/2000

Department of Electronic Engineering, Tsinghua University

Selected Publications (out of 60+)

- Y. Li and K. Yao, “Interpretable NLG for task-oriented dialogue systems with heterogeneous rendering machines”, in *AAAI* 2021
- Y. Li, H. Li, K. Yao, and X. Li, “Handling rare entities for neural sequence labeling”, in *ACL* 2020
- Y. Li, K. Yao, L. Qin, W. Che, X. Li, T. Liu, “Slot-consistent NLG for task-oriented dialogue systems with iterative rectification network”, in *ACL* 2020
- Y. Li, K. Yao, L. Qin, and X. Li, “Span-based neural buffer: towards efficient and effective utilization of long-distance context for sequential neural models”, in *AAAI*, 2020
- T. Cohn, C. Hoang, E. Vymolova, K. Yao, C. Dyer, G. Haffari, “Incorporating structural alignment biases into an attentional neural translation Model”, in *NAACL*, 2016
- Y. Zhang, G. Chen, D. Yu, K. Yao, S. Khudanpur, and J. Glass, “Highway long short-term memory RNNs for distant speech recognition”, in *ICASSP*, 2016
- K. Yao and G. Zweig, “Sequence-to-sequence neural net models for grapheme-to-phoneme conversion”, in *INTERSPEECH*, 2015
- G. Mesnil, Y. Dauphin, K. Yao, et al, “Using recurrent neural networks for slot filling in spoken language understanding”, in *IEEE Trans. On Audio, Speech, and Language Processing*, 2015
- S. Zhang, C. Liu, K. Yao, and Y. Gong, “Deep neural support vector machines for speech recognition”, in *ICASSP*, 2015
- K. Yao, B. Peng, G. Zweig, D. Yu, X. Li and F. Gao, “Recurrent conditional random field for language understanding”, in *ICASSP*, 2014
- L. Deng, J. Li, JT. Huang, K. Yao, D. Yu, F. Seide, G. Zweig, X. He, et al, “Recent advances in deep learning for speech research at Microsoft”, in *ICASSP*, 2013
- D. Yu, K. Yao, H. Su, G. Li and F. Seide, “KL-divergence regularized deep neural network adaptation for improved large vocabulary speech recognition”, in *ICASSP*, 2013
- K. Yao, G. Zweig, M.Y. Hwang, Y. Shi, and D. Yu, “Recurrent neural networks for language understanding”, in *INTERSPEECH*, 2013
- D. Povey and K. Yao, “A basis representation of constrained MLLR transforms for robust adaptation”, in *Computer, Speech, and Language*, 2012
- K. Yao, D. Yu, F. Seide, H. Su, L. Deng and Y. Gong, “Adaptation of context-dependent deep neural networks for automatic speech recognition”, in *IEEE SLT*, 2012
- K. Yao and S. Nakamura, “Sequential noise compensation by sequential Monte Carlo”, in *NIPS*, 2003

Impacts

Google [Scholar](#): Citations 4833, h-index 26, i10-index 51

Others

Marathon

2013, 2016, 2019