

# Jinchuan Tian

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## EDUCATION

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### Ph.D in Language and Information Technologies

- Language Technologies Institute, Carnegie Mellon University
- Advised by Prof. Shinji Watanabe

Sep. 2023 - Now  
Pittsburgh, USA

### Master of Science in Computer Applied Technology

- Peking University (PKU)
- Advised by Prof. Yuexian Zou
- GPA 3.79 / 4.00; Rank 3/87

Sep. 2020 - Jun. 2023  
China

### Bachelor of Engineering in Electronic Information Engineering

- University of Electronic Science and Technology of China (UESTC)
- Joint program with University of Glasgow (UoG)
- GPA 3.84 / 4.00; Rank 3%

Sep. 2016 - Jun. 2020  
China  
UK

## RESEARCH INTEREST

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Automatic Speech Recognition (ASR)    Speech Translation (ST)    Self-supervised Learning (SSL) for Speech  
Speech Enhancement (SE)            Speech Synthesis (TTS)    and any topics related to speech and language

## RESEARCH INTERNSHIP

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Language Technologies Institute, Carnegie Mellon University (Remote Collaboration)

- Work with: Prof. Shinji Watanabe and Brian Yan

Jun. 2022 - Feb. 2023

Speech Group, Tencent AI LAB, Tencent Ltd., China

- Work with: Dr. Dong Yu, Dr. Chao Weng, Dr. Jianwei Yu and Dr. Yiheng Huang

Jul. 2019 - Aug. 2023

## PUBLICATION

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- [\[PDF\]](#) **Jinchuan Tian**, Jianwei Yu, Hangting Chen, Brian Yan, Chao Weng, Dong Yu, Shinji Watanabe, *Bayes Risk Transducer: Transducer with Controllable Alignment Prediction*, in Interspeech 2023
- [\[PDF\]](#) **Jinchuan Tian**, Brian Yan, Jianwei Yu, Chao Weng, Dong Yu and Shinji Watanabe, *Bayes risk CTC: Controllable CTC alignment in Sequence-to-Sequence tasks*, in International Conference on Learning Representation (ICLR), 2023
- [\[PDF\]](#) **Jinchuan Tian**, Jianwei Yu, Chao Weng, Yuexian Zou and Dong Yu, *Integrating Lattice-Free MMI Into End-to-End Speech Recognition*, in IEEE/ACM Transactions on Audio, Speech, and Language Processing (TASLP), 2022
- [\[PDF\]](#) **Jinchuan Tian**, Jianwei Yu, Chunlei Zhang, Yuexian Zou and Dong Yu, *LAE: Language-Aware Encoder for Monolingual and Multilingual ASR*, in Interspeech, 2022
- [\[PDF\]](#) **Jinchuan Tian**, Jianwei Yu, Chao Weng, Yuexian Zou and Dong Yu, *Improving Mandarin End-to-End Speech Recognition With Word N-Gram Language Model*, in IEEE Signal Processing Letters (SPL), 2022
- [\[PDF\]](#) **Jinchuan Tian**, Jianwei Yu, Chao Weng, Yuexian Zou and Dong Yu, *Consistent Training and Decoding for End-to-End Speech Recognition Using Lattice-Free MMI*, in IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2022
- [\[PDF\]](#) Yifan Peng, **Jinchuan Tian**, Brian Yan, Dan Berrebbi, Xuankai Chang, Xinjian Li, Jiatong Shi, Sidhant Arora, William Chen, Roshan Sharma, Wangyou Zhang, Yui Sudo, Muhammad Shakeel, Jee-weon Jung, Soumi Maiti, Shinji Watanabe, *Reproducing Whisper-Style Training Using an Open-Source Toolkit and Publicly Available Data*, in Automatic Speech Recognition and Understanding (ASRU) 2023

- [\[PDF\]](#) Yiheng Huang\*, **Jinchuan Tian\***, Lei Han, Guangsen Wang, Xingchen Song, Dan Su and Dong Yu, *A Random Gossip BMUF Process for Neural Language Modeling*, in IEEE International Conference on Acoustics, Speech and Signal Processing (**ICASSP**), 2020, **Equal Contribution**

## COMMUNITY COMMITMENT

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Contributor	<a href="#">Espnet</a> (5.7k+ stars)	Reviewer	ICASSP
Owner	<a href="#">Personal Speech Recognition Toolkit</a> (140+ stars)		

## SKILL

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Programming Languages, Frameworks and Toolkits	Python, C++   Pytorch   Kaldi, Espnet, Kaldi2 (K2)
Test Scores	TOEFL 107, GRE 328

## PROJECT

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**Differentiable Finite-State Machine in End-to-end Speech Recognition** **Major Researcher**

- A Tencent AI Lab Rhino-Bird Focused Research Program (a joint program with Peking University);
- Investigates the potential applications of the differentiable finite-state machine in multiple end-to-end speech recognition problems, including criteria formulation, language modeling, and decoding algorithms.

**Industrial ASR Serving System** **Major Developer**

- A complete training and serving pipeline based on RNN-Transducer model;
- Scale up to industrial-large (60k-hour) corpus;
- Double training speed and 15% relative performance improvement compared with the previous internal system.

**Speech Assessment: *Mandarin Town*** **Major Developer**

- A non-profit speech assessment software for Mandarin teaching, funded by Chinese government;
- Build the character-level goodness of pronunciation (GoP) scoring module with acoustic models and alignments.

## AWARD

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China National Scholarship, (1%)	Chinese Ministry of Education & PKU, 2021-2022
China National Scholarship, (1%)	Chinese Ministry of Education & UESTC, 2018-2019
Merit Student	PKU, 2021-2022
Outstanding Graduate Award	UESTC, 2020
Outstanding Final-Year Project	UESTC, 2020
First-Class Honor Degree	UoG, 2020
Tang Li-xin Scholarship (<1%)	UESTC, 2018