

# Xu LI

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## BIOGRAPHY

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I am currently a Ph.D. student in the Department of Systems Engineering and Engineering Management, the Chinese University of Hong Kong. My supervisor is Prof. Helen Meng.

**The Chinese University of Hong Kong, Hong Kong SAR, China** *August 2017 - Present*  
Ph.D. candidate in Dept. of Systems Engineering and Engineering Management;

**University of Science and Technology of China, Hefei, Anhui, China** *July 2013 - June 2017*  
B.E. in Dept. of Information Science and Technology;

## SELECTED PUBLICATIONS AND MANUSCRIPTS [[Google Scholar](#)]

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**Channel-wise Gated Res2Net: Towards Robust Detection of Synthetic Speech Attacks,**  
**Xu Li**, Xixin Wu, Hui Lu, Xunying Liu and Helen Meng, under review for the Proceedings of Interspeech, 2021

**Adversarial Defense for Automatic Speaker Verification for Self-Supervised Learning,**  
**Xu Li\***, Haibin Wu\*, Andy T. Liu, Zhiyong Wu, Helen Meng and Hung-yi Lee, under review for IEEE/ACM Transactions on Audio Speech and Language Processing

**Replay and Synthetic Speech Detection with Res2Net Architecture,**  
**Xu Li**, Na Li, Chao Weng, Xunying Liu, Dan Su, Dong Yu and Helen Meng, in IEEE ICASSP, 2021

**Adversarial Defense for Automatic Speaker Verification by Cascaded Self-Supervised Learning Models,**  
**Xu Li\***, Haibin Wu\*, Andy T. Liu, Zhiyong Wu, Helen Meng and Hung-yi Lee, in IEEE ICASSP, 2021

**Investigating Robustness of Adversarial Samples Detection for Automatic Speaker Verification,**  
**Xu Li**, Na Li, Jinghua Zhong, Xixin Wu, Xunying Liu, Dan Su, Dong Yu and Helen Meng, in the Proceedings of Interspeech, 2020

**Bayesian x-vector: Bayesian Neural Network based x-vector System for Speaker Verification,**  
**Xu Li**, Jinghua Zhong, Jianwei Yu, Shoukang Hu, Xixin Wu, Xunying Liu and Helen Meng, in Speaker Odyssey, 2020

**Adversarial Attacks on GMM i-vector based Speaker Verification Systems,**  
**Xu Li**, Jinghua Zhong, Xixin Wu, Jianwei Yu, Xunying Liu and Helen Meng, in IEEE ICASSP, 2020.

**Unsupervised Discovery of Non-native Phonetic Patterns in L2 English Speech for Mispronunciation Detection and Diagnosis,**  
**Xu Li**, Shaoguang Mao, Xixin Wu, Kun Li, Xunying Liu and Helen Meng, in the Proceedings of Interspeech, 2018, pp. 2254-2258

**Deep Segmental Phonetic Posterior-grams based Discovery of non-categories in L2 English Speech,**  
**Xu Li**, Xixin Wu, Xunying Liu and Helen Meng, arXiv preprint arXiv:2002.00205 (2020).

**Unsupervised Discovery of an Extended Phoneme Set in L2 English Speech for Mispronunciation Detection and Diagnosis**,  
Shaoguang Mao, **Xu Li**, Kun Li, Zhiyong Wu, Xunying Liu and Helen Meng, in IEEE ICASSP, 2018,  
pp. 6244-6248

## RESEARCH EXPERIENCE & PROJECT

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02/2020 - 12/2020: **Internship at Tencent AI Lab, Shenzhen, China**  
automatic speaker verification (ASV), anti-spoofing, adversarial attacks

07/2019 - Present: **automatic speaker verification, anti-spoofing counter-measures**  
In this period, I focused on developing strong automatic speaker verification (ASV) systems, and also anti-spoofing counter-measures against malicious spoofing attacks, including replay, text-to-speech (TTS), voice conversion (VC) and adversarial attacks.

08/2017 - 06/2019: **mispronunciation detection and diagnosis, second language learning**  
In this period, I focused on modeling the non-categorical pronunciations in second language (L2) English speech. The non-categorical pronunciations in L2 speech usually cannot be described by any native phoneme, and lack sufficient annotations from linguists. Our proposed approach explores the non-categories in an unsupervised manner, which is a data-driven approach with little human effort. This modeling of non-categories results in a more effective mispronunciation detection and more precise feedback (diagnosis) to language learners.

02/2017 - 06/2017: Research Assistant at **Graduate School at Shenzhen, Tsinghua University**, supervised by Prof. Zhiyong Wu  
Focusing on acoustic-phonemic modeling of L2 English speech units.

## HONORS & AWARDS

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2015: Kwang-Hua Scholarship, Kwang-Hua Educational Foundation  
2014: Excellent Undergraduate Scholarship, USTC  
2013: Freshman Scholarship, USTC  
2015: Third Prize in the Electronics Development Competition, USTC

## PROGRAMMING SKILLS

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**Language:** Python > C/C++ > MATLAB > Java  
**Frameworks:** Pytorch, Kaldi, TensorFlow