

LONG QIN

Education

Carnegie Mellon University

June 2013

Ph.D. in Language and Information Technologies

University of Science and Technology of China

June 2007

M.S. in Speech Processing

University of Science and Technology of China

June 2004

B.S. in Electrical Engineering

Experience

Software Engineer

10/2014 - Present

Duolingo, Pittsburgh, PA

- Language learning
 - ✓ Automatic speech assessment

Research Scientist

6/2013 - 10/2014

M*Modal, Pittsburgh, PA

- Medical transcription
 - ✓ Developed model-based (GMM and NN) voice activity detection (VAD) and rejection model (RM)
 - ✓ Improved online feature normalization
 - ✓ Investigated speech recognition problems from production logs

Research Assistant

8/2007 - 5/2013

Carnegie Mellon University

- Out-of-vocabulary (OOV) word learning
 - ✓ Built the hybrid system framework for OOV word detection
 - ✓ Improved the OOV word detection performance by using system combination techniques
 - ✓ Identified recurrent OOV words through bottom-up clustering
 - ✓ Learned OOV words by integrating OOV words into the lexicon and language model
- Acoustic modeling
 - ✓ Implemented maximum mutual information (MMI) training in SPHINX
 - ✓ Investigated the performance of discriminative training on pruned lattices
 - ✓ Implemented speaker adaptive training (SAT) in SPHINX
- System building
 - ✓ Built SPHINX recognizers for the BOLT and BABEL projects
 - ✓ Maintained SPHINX trainer codebase

Research Intern

5/2011 - 8/2011

Microsoft, Redmond, WA

- Discriminative training (DT)
 - ✓ Implemented feature-space discriminative training (fbMMI)
 - ✓ Optimized lattice generation tools to accelerate discriminative training

Research Assistant

1/2004 - 7/2007

University of Science and Technology of China

- Model adaptation for HMM-based speech synthesis
 - ✓ Introduced a model adaptation algorithm under the minimum generate error (MGE) criterion
 - ✓ Improved the maximum likelihood linear regression (MLLR) model adaptation using context clustering decision tree and appropriate regression matrix

Skills

- Speech Recognition and Synthesis, Natural Language Processing, Machine Learning
- SPHINX, HTK, CMULM, SRILM, Hadoop
- C++, Python, Perl, Matlab

Publications

- [1] **Long Qin** and Alex Rudnicky, "Building a vocabulary self-learning speech recognition system," *Interspeech-2014*, Singapore, 2014.
- [2] **Long Qin**, "Learning out-of-vocabulary words in automatic speech recognition," Ph.D. Dissertation, Carnegie Mellon University, 2013.
- [3] **Long Qin** and Alex Rudnicky, "Learning better lexical properties for recurrent OOV words," *Proc. ASRU-2013*, Olomouc, 2013.
- [4] Ankur Gandhe, **Long Qin**, Florian Metze, Alex Rudnicky, Ian Lane and Matthias Eck, "Using web text to improve keyword spotting in speech," *Proc. ASRU-2013*, Olomouc, 2013.
- [5] **Long Qin** and Alex Rudnicky, "Finding Recurrent Out-of-Vocabulary Words," *Proc. Interspeech-2013*, Lyon, 2013.
- [6] **Long Qin** and Alex Rudnicky, "OOV Word Detection using Hybrid Models with Mixed Types of Fragments," *Proc. Interspeech-2012*, Portland, 2012.
- [7] **Long Qin**, Ming Sun, and Alex Rudnicky, "System Combination for Out-of-Vocabulary Word Detection," *Proc. ICASSP-2012*, pp. 4817-4820, Kyoto, 2012.
- [8] **Long Qin**, Ming Sun, and Alex Rudnicky, "OOV Detection and Recovery using Hybrid Models with Different Fragments," *Proc. Interspeech-2011*, pp. 1913-1916, Florence, 2011.
- [9] **Long Qin** and Alex Rudnicky, "The effect of lattice pruning on MMIE training," *Proc. ICASSP-2010*, pp. 4898-4901, Dallas, 2010.
- [10] **Long Qin** and Alex Rudnicky, "Implementing and improving MMIE training in SphinxTrain" *CMU Sphinx User and Developers Workshop 2010*, Dallas, 2010.
- [11] Yi-Jian Wu, **Long Qin**, and Keiichi Tokuda, "An improved minimum generation error based model adaptation for HMM-based speech synthesis," *Proc. Interspeech-2009*, Brighton, 2009.
- [12] **Long Qin**, Yi-Jian Wu, Zhen-Hua Ling, Ren-Hua Wang, and Li-Rong Dai, "Minimum Generation Error Linear Regression Based Model Adaptation for HMM-Based Speech Synthesis," *Proc. ICASSP-2008*, pp. 3953-3956, Las Vegas, 2008.
- [13] **Long Qin**, Yi-Jian Wu, Zhen-Hua Ling, and Ren-Hua Wang, "Model Adaptation for HMM-Based Speech Synthesis under Minimum Generation Error Criterion," *Proc. the 2008 Tenth IEEE International Symposium on Multimedia*, pp. 539-544, Berkeley, California, 2008.
- [14] Zhen-Hua Ling, **Long Qin**, Heng Lu, et. al., "The USTC and iFlytek Speech Synthesis Systems for Blizzard Challenge 2007," *Blizzard Challenge 2007*, Antwerp, 2007.
- [15] **Long Qin**, Yi-Jian Wu, Zhen-Hua Ling, and Ren-Hua Wang, "Improving the Performance of HMM-Based Voice Conversion using Context Clustering Decision Tree and Appropriate Regression Matrix," *Proc. ICSLP-2006*, pp.2250-2253, Pittsburgh, 2006.
- [16] Zhen-Hua Ling, Yi-Jian Wu, Yu-Ping Wang, **Long Qin**, and Ren-Hua Wang, "USTC System for Blizzard Challenge 2006 an Improved HMM-Based Speech Synthesis Method," *Blizzard Challenge 2006*, Pittsburgh, 2006.
- [17] **Long Qin**, Zhen-Hua Ling, Yi-Jian Wu, Bu-Fan Zhang and Ren-Hua Wang, "HMM-Based Emotional Speech Synthesis using Average Emotion Model," *Proc. ISCSLP-2006*, Springer LNCS Book, Vol. 4274/2006, pp. 233-240, Singapore, 2006.
- [18] Bu-Fan Zhang, Zhen-Hua Ling, **Long Qin** and Ren-Hua Wang, "Applying SFC Model for Chinese Expressive Speech Synthesis," *Proc. ISCSLP-2006 (Companion Volume)*, Singapore, 2006.
- [19] **Long Qin**, Gao-Peng Chen, Zhen-Hua Ling, and Li-Rong Dai, "An Improved Spectral and Prosodic Transformation Method in STRAIGHT-Based Voice Conversion," *Proc. ICASSP-2005*, vol. 1, pp. 21-24, Philadelphia, 2005.
- [20] **Long Qin**, Yi-Jian Wu, and Ren-Hua Wang, "Regression Matrix Tied using Decision Tree in HMM-Based Voice Conversion," *Proc. National Conference on Man-Machine Speech Communication (NCMMSC-2005)*, Beijing, 2005.

Patents

- “Minimum Generation Error Linear Regression Based Model Adaptation for HMM-Based Speech Synthesis,” 2007. (CN101178895)
- "A voice conversion method based on model adaptation and high level descriptive information," 2006. (CN1835074)

Honors

- Outstanding Presentation – 2012 LTI Student Research Symposium
- USTC GuangHua Education Award, Oct, 2005.
- USTC CASC Award, Oct, 2006.

References

- *Available Upon Request*