
Lilei Zheng

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Education

INSA-Lyon, School of Information and Mathematics, majoring in Machine Learning and Computer Vision.

Oct. 2012 - Apr. 2016

Ph.D in Engineering

Northwestern Polytechnical University, School of Computer Science, majoring in Audio, Speech and Language Processing.

Sept. 2009 - Apr. 2012

Master of Engineering

Sept. 2005 - Jul. 2009

Bachelor of Engineering

GPA: 87.8/100.0 (Top 10%)

Internship

2010.11--2011.4: Institute for Infocomm Research (I2R), A*STAR, Singapore

An intern student in the department of Human Language Technology (HLT), **supervised by Dr. Bin Ma and Dr. Haizhou Li**, working on spoken document segmentation using only acoustic resource.

Project Highlights

Supported by the Ph.D. Co-operation Program between UT-INSA (France) and China Scholarship Council, my thesis (Oct. 2012 - Apr. 2016) focuses on developing novel metric learning methods, finding applications in Image Processing, Face Verification, Speaker Verification, Object Classification and Dimensionality Reduction.

- We proposed a novel metric learning method called [Triangular Similarity Metric Learning \(TSML\)](#).
- We applied TSML for both face verification and speaker verification, with [open data and codes](#).
- We assessed TSML in the [FG 2015 Kinship Verification in the Wild Evaluation](#) and **achieved the best results**.
- We utilized [CAFFE](#) to integrate [deep architectures](#) with TSML to perform end-to-end dimensionality reduction and data visualization.

Research Experience

- **Research Interests**

Metric Learning, Siamese Neural Networks, Deep Learning; Face Recognition, Image Processing, Spoken Language Processing

- **Research Topics**

- **Ph.D. Thesis: Metric Learning and Siamese Neural Networks**

Content: Metric Learning methods in shallow and deep architectures, finding applications in Face Verification, Speaker Verification, Object Classification and Dimensionality Reduction.

- **Master Thesis: Spoken Document Segmentation**

Content: Spoken document segmentation of broadcasts news for multimedia information retrieval, developing segmentation approaches based on Laplacian Eigenmaps using low-resource in speech.

- **Bachelor Thesis: Automatic Caption Generator (ACG)**

Content: Designing and implementing a caption generation system integrates various functions, i.e., audio abstraction, audio classification, audio segmentation, LVCSR, caption generation and video controls.

Publications

- **Lilei Zheng**, Stefan Duffner, Khalid Idrissi, Christophe Garcia, Atilla Baskurt, “Triangular Similarity Metric Learning for Pairwise Identity Verification”, **IEEE Transactions on Neural Networks and Learning Systems (under review)**.
- **Lilei Zheng**, Stefan Duffner, Khalid Idrissi, Christophe Garcia, Atilla Baskurt, “Siamese Multi-layer Perceptrons for Dimensionality Reduction and Face Identification”, **Multimedia Tools and Applications**, Springer, 2015.
- J. Lu, J. Hu, V.E. Liong, X. Zhou, A. Bottino, I.U. Islam, T.F. Vieira, X. Qin, X. Tan, S. Chen, Y. Keller, S. Mahpod, **L. Zheng**, K. Idrissi, C. Garcia, S. Duffner, A. Baskurt, M. Castrillon-Santana, J. Lorenzo-Navarro, “The FG 2015 Kinship Verification in the Wild Evaluation”, FG 2015 (**We achieved the best results!**)
- **Lilei Zheng**, Khalid Idrissi, Christophe Garcia, Stefan Duffner, Atilla Baskurt, “Triangular Similarity Metric Learning for Face Verification”, FG 2015
- **Lilei Zheng**, Khalid Idrissi, Christophe Garcia, Stefan Duffner, Atilla Baskurt, “Logistic Similarity Metric Learning for Face Verification”, ICASSP 2015
- Hongjie Chen, Lei Xie, Wei Feng, **Lilei Zheng** and Yanning Zhang, “Topic Segmentation on Spoken Documents Using Self-Validated Acoustic Cuts,” Soft Computing, Springer, 2014
- Lei Xie, Yinqing Xu, **Lilei Zheng**, Qiang Huang, Bingfeng Li, “Speech Pattern Discovery using Audio-Visual Fusion and Canonical Correlation Analysis”, INTERSPEECH 2012
- **Lilei Zheng**, Cheung-Chi Leung, Lei Xie, Bin Ma and Haizhou Li, “Acoustic TextTiling for story segmentation of spoken documents”, ICASSP 2012.
- Lei Xie, **Lilei Zheng**, Zihan Liu and Yanning Zhang, "Laplacian Eigenmaps for Automatic Story Segmentation of Broadcast News," **IEEE Transactions on Audio, Speech and Language Processing**, 2012.
- Mimi Lu, **Lilei Zheng**, Cheung-Chi Leung, Lei Xie, et. al., "Broadcast News Story Segmentation Using Probabilistic Latent Semantic Analysis and Laplacian Eigenmaps", APSIPA ASC 2011, Xi'an, China, 2011.
- **Lilei Zheng**, Lei Xie, Mimi Lu, Xiaoxuan Wang, Yulian Yang, Yanning Zhang, "An Automatic Caption Generator for Mandarin Broadcast News", CHINESE JOURNAL OF ELECTRONICS, Vol. 39, No. 3A, 2011.
- Zihan Liu, Lei Xie and **Lilei Zheng**, Laplacian Eigenmaps for Automatic News Story Segmentation, International Conference on Audio, Language and Image Processing (ICALIP 2010), Shanghai, China.
- **Lilei Zheng**, Lei Xie, et. al., "An Automatic Caption Generator for Mandarin Broadcast News", The Fifth Joint Conference on Harmonious Human Machine Environment (HHME 2009), Xi'an, China. (**Best Paper Award**, and the subsequent work was recommended to be published in CHINESE JOURNAL OF ELECTRONICS)
- Mimi Lu, Lei Xie, **Lilei Zheng**, et. al., “Anchor labeling system for broadcast news using Alize-toolkit”, The Fifth Joint Conference on Harmonious Human Machine Environment (HHME2009), Xi'an, China.

Honors and Awards

2015: First place in the FG 2015 Kinship Verification in the Wild Evaluation

2012: Excellent Master Thesis of NPU, the First Prize

2011: Outstanding Graduate Student Cadre Scholarship in NPU

2010: Institute of Electro-light Equipment Research Special Scholarship, Outstanding Graduate Student Cadre Scholarship in NPU.

2009: Best paper award, The Fifth Joint Conference on Harmonious Human Machine Environment (HHME2009)

2008/2007/2006: Outstanding Undergraduate Student (Cadre) Scholarship in NPU

2007: The First Prize of Programming Skills Competition

2006: The First Prize of Social Practice during Summer Vacation

2005: Special Elite Award (Rank: 4/256)

Skills

- **Standard Test**

IELTS: 7.0 listening: 8.5 reading: 7.5 writing: 6.0 speaking: 5.0

TOEIC: 920 listening: 490 reading: 430

- **Programming Skills**

Familiar with C/C++, Matlab, Java, Perl, Python

Familiar with image and speech processing tools such as CAFFE, OpenCV, HTK

Project experience on image processing and spoken language recognition