

Shuo Zhang

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Bose Corporation, Framingham, MA • *Résumé current as of August 6, 2022*

Skills

Coding/ML/Cloud

Python, Java, R, Swift, Matlab; tensorflow, pytorch, praat

Expertise areas

Machine learning, deep learning, NLP, audio and music computing

Natural languages

Mandarin (native), English (fluent), Spanish, Japanese, French

Employment

Bose Corporation, *Senior Machine Learning Research Engineer* 07/2017 - present

- Senior machine learning research engineer in Bose Research
- Focus on machine learning for natural language processing(NLP), speech and audio signal processing
- Use deep learning and DSP to solve problems such as audio understanding and classification, sound localization, voice energy prediction, audio super resolution using microphone and recording data
- Spearheaded and led high-impact deep learning for audio signal processing projects
- Lead and oversee deep learning work in interdisciplinary research projects in teams
- Hire and supervise employees, interns and co-ops in machine learning for audio and NLP
- Certified Scrum Master (Project Management) by Scrum Alliance

Universitat Pompeu Fabra (Spain), *Researcher Collaborator* 05/2013 - 06/2017

- Music Technology Group, Department of Communications and Information Technology (DTIC)
- CompMusic Project (Computational models for the discovery of world music) funded by European Research Council, PI: Prof. Xavier Serra
- Conduct research in NLP and MIR (Music Information Retrieval), time-series data mining, text mining, machine learning for audio signal processing and computational musicology

Georgetown University, *PhD Research Assistant* 1/2012 - 06/2017

- Contribute to research projects on NLP and speech (funded by NSF, NEH, DFG, etc.)
- Contributed to high-impact NLP software projects including ANNIS, GitDOX, and XRENNER
- Research experience in Linguistics and Computer Science departments
- Course works from Linguistics, Mathematics, Computer Science, Neurosciences

Professional Services

Invited Peer Reviews (journal and conference publications) 2013-present

EMNLP2022, IEEE-MMSP2022, ISMIR2022, DCASE2022, NLP4DH2022, ACM-MM2022, EMNLP2022, ICASSP2022, ARR2022, NLP4DH2021, IEEE-MMSP2021, NLP4MUSA2021, ISMIR2021, ACM-MM2021, ACM-MM-Asia2021, EUSIPCO2021, EMNLP2021, ICASSP2021, NAACL2021, ACL2021, DCASE2021, EACL2021, EUSIPCO2020, DCASE2019, DCASE2020, ACL2020, ISMIR2020, ACL 2019, NAACL2019, ECNLP2019, ECNLP2020, NLP4MusA2020, ACAL2014, MASCSLL2017, Glossa (Journal), EMNLP2020

Services 2020-present

- AI Accelerator Institute Ambassador (2020-2021)
- Mentor, FourthBrain.ai, startup backed by Andrew Ng (2020-2021)
- Mentor, NAACL 2019
- Co-Chair of Industry Liaisons, DCASE Workshop conference 2021, 2022

Selected Patents

Bose Corp., *Co-inventor* 2020

Spatialized Voice Assistant, US20200142667A1

Bose Corp., *Co-inventor* 2020

Systems and Methods for AR Content Harvesting and Information Extraction, US20200278831

Bose Corp., *Co-inventor* 2021

Hearing Augmentation and Wearable System with Localized Feedback, US2021049008

- Bose Corp., *Co-inventor*** 2021
 Customizable Sensitivity for Sound Event Detection. Pending US patent approval.
- Bose Corp., *Co-inventor*** 2021
 Recovery of Voice Audio Quality Using a Deep Learning Model. Pending patents approval (US/India).
- Bose Corp., *Co-inventor*** 2022
 Intelligent Speech or Dialogue Enhancement. Pending US patent approval.

Invited Talks & Conference Tutorials

- Invited talks** 2010–present
 REWORK NLP and Conversational AI Summit 2021, NLP4MusA Workshop @ISMIR2020, AI Festival by AI Accelerator Institute 2020, AI Festival APAC 2020, AI Accelerator Summit 2019/2020, Rework Deep Learning Summit 2019, Global AI Conference 2019/2020, Spotify, Bose, Dolby Labs, Tencent, Douban, University of Washington, Harvard University, Tufts University, Indiana University of Pennsylvania, Duquesne University, Carnegie Library of Pittsburgh, Peking University, Tsinghua University, Fudan University, China Communications University, China Conservatory of Music, Central Conservatory of Music, China Academy of Social Sciences, TWCCO Singapore, etc.
- Conference tutorials, *co-instructor*** 2016
 “The Application of NLP in MIR”. Tutorial given at International Society for Music Information Retrieval (ISMIR) 2016 conference, NYU/Columbia University, New York.

Academics

- Georgetown University, *Washington DC*** 2012–2017
 PhD, MS in Computational Linguistics (General Concentration)
- University of Pittsburgh, *Pittsburgh, PA*** 2006–2009
 MA, Department of Music
- Peking University, *Beijing, China*** 2002–2006
 BS, College of Environmental Sciences and Engineering

Publications

- Peer-reviewed publications (selected)** 2010–present
- (2019) Zhang,S. Data mining Mandarin tone contour shapes. Proc. of SIGMORPHON at ACL 2019.
- (2017) Caro, R, Zhang, S, Serra, X. Quantitative analysis of the relationship between linguistic tones and melody in jingju using music scores. Proc. of DfML at ISMIR 2017 (published by ACM-ICPS).
- (2017) Zhang,S., Caro,R, Serra,X. Understanding the expressive functions of jingju metrical patterns through lyrics text mining. Proc. of ISMIR 2017.
- (2017) Zhang,S. RankLyrics: A ranking-based approach to automatic song lyrics generation. Poster at MASCSLL’17 .
- (2017) Zhang, S., Zeldes, A. GitDOX: A Linked Version Controlled Online XML Editor for Manuscript Transcription. Proc. of FLAIRS 30 (published by AAAI Press).
- (2016) Zhang, S. Mining linguistic tone patterns with symbolic representation. Proc. of the 14th SIGMORPHON at ACL 2016.
- (2016) Zeldes,A, Zhang, S. When Schemas Change Rules Help : A Configurable Approach to Coreference beyond OntoNotes. Proc. of CORBON at NAACL 2016.
- (2015) Zhang,S, Caro, R, Serra,X. Predicting pairwise pitch contour relations based on linguistic tone information in Beijing opera singing. Proc. of ISMIR 2015.
- (2014) Zhang, S, Caro, R, Serra,X,. Study of the similarity between linguistic tones and melodic pitch contours in Beijing Opera singing. Proc. of ISMIR 2014.
- (2010) Zhang, S. Speech-to-Song Illusion: Evidence from MC. Sino-European Winter School of Logic, Language, and Computation.