

Luwei Yang

luwei.yang.ai@outlook.com
luweiyang.com

Personal Statement

A machine/deep learning researcher experienced in recommender algorithms & systems, music information retrieval and natural language processing.

Education

2012-2016	PhD in Electronic Engineering Queen Mary University of London School of Electronic Engineering and Computer Science Centre for Digital Music Thesis: Computational Modelling and Analysis of Vibrato and Portamento in Expressive Music Performance Supervisors: Prof. Elaine Chew and Dr. Khalid Z. Rajab
2008-2012	BSc with Honours in e-Commerce Engineering with Law Beijing University of Posts and Telecommunications (Joint Program with Queen Mary University of London) GPA:86.64/100, Rank: 4 in 166, First Class Final year project: GPS Land Area Calculator

Work Experience

2017	
Nov-Nov	Alibaba Group Algorithm Engineer Recommender Algorithms Recommender Systems
Feb-Nov	Huawei Technologies Co., Ltd Machine Learning Engineer Chatbot Sentiment Analysis Speech Emotion Recognition
2015	
Oct-Dec	Yamaha Corporation Japan Research Intern Intelligent Music System Group, R&D Division Project: Note-level probabilistic transcription of sung melody Work with Dr. Akira Maezawa

Peer-Reviewed Publications

1. E. J. Humphrey, S. Reddy, P. Seetharaman, A. Kumar, R. M. Bittner, A. Demetriou, S. Gulati, A. Jansson, T. Jehan, B. Lehner, A. Krupse, and L. Yang, “An introduction to signal processing for singing-voice analysis: High notes in the effort to automate the understanding of vocals in music,” *IEEE Signal Processing Magazine*, vol. 36, no. 1, pp. 82–94, 2019
2. L. Yang, K. Z. Rajab, and E. Chew, “Filter diagonalisation method for music signal analysis: Frame-wise vibrato detection and estimation,” *Journal of Mathematics and Music*, 2017
3. L. Yang, A. Maezawa, J. B. L. Smith, and E. Chew, “Probabilistic transcription of sung melody using a pitch dynamic model,” in *Proc. of the 42nd IEEE International Conference on Acoustics, Speech and Signal Processing*, 2017
4. L. Yang, K. Z. Rajab, and E. Chew, “AVA: An interactive system for visual and quantitative analyses of vibrato and portamento performance styles,” in *Proc. of the 17th International Society for Music Information Retrieval Conference*, 2016
5. L. Yang, K. Z. Rajab, and E. Chew, “AVA: A graphical user interface for automatic vibrato and portamento detection and analysis,” in *Proc. of the 42nd International Computer Music Conference*, pp. 547–550, 2016
6. L. Yang, M. Tian, and E. Chew, “Vibrato characteristics and frequency histogram envelopes in beijing opera singing,” in *Proc. of the 5th International Workshop on Folk Music Analysis*, pp. 139–140, 2015
7. L. Yang, E. Chew, and K. Z. Rajab, “Logistic modeling of note transitions,” in *Mathematics and Computation in Music*, pp. 161–172, Springer, 2015
8. L. Yang, E. Chew, and K. Z. Rajab, “Cross-cultural comparisons of expressivity in recorded erhu and violin: Performer vibrato styles,” in *Proc. of the 4th International Workshop on Folk Music Analysis*, 2014
9. L. Yang, E. Chew, and K. Z. Rajab, “Vibrato performance style: A case study comparing erhu and violin,” in *Proc. of the 10th International Conference on Computer Music Multidisciplinary Research*, pp. 904–919, 2013

Awards and Scholarships

2017	
Jan	IEEE Signal Processing Society Travel Grant for ICASSP2017 (US\$500)
2016	
Jul	Travel fund for presentation at ISMIR 2016, QMUL Postgraduate Research Fund (£751)
May	Travel fund for presentation at ICMC 2016, QMUL School of Electronic Engineering and Computer Science (£888)
2015	
Aug	International Internship grant, Yamaha Corporation Japan and QMUL-BUPT Joint Program (£2800)
May	Travel fund for presentation at FMA 2015 QMUL School of Electronic Engineering and Computer Science (£314)
2014	
Aug	Travel grant for presentations at the Mathematical Conversations International Workshop 2015, Institute for Mathematical Sciences, National University of Singapore (£1000)
May	Travel grant for presentations at FMA 2014 and ITU Music Conservatory, QMUL Centre for Digital Music (£464)
2013	
Oct	Travel grant for presentation at CMMR 2013, QMUL Centre for Digital Music (£792.52)
2012	
Dec	1st Prize (Graduate Level), QMUL IEEE Student Paper Contest 2012
May	China Scholarship Council (CSC) PhD Fellowship, 4-year doctoral funding awarded through national competition (£52, 800)
2011	
Dec	Final year exchange scholarship with Dublin City University, opportunity available only to first class honors students, funded in part by Queen Mary University of London (£800)
Apr	Meritorious Winner, Interdisciplinary Contest in Modeling 2011 (MCM/ICM), Consortium for Mathematics and Its Applications (COMAP) Recognition accorded approximately 20% of participants

Projects

2017	
Jun–Now	“Chatbot of CRM system for Telecom Companies” Investigated and developed the prototype of intent recognition system using information retrieval and machine learning methods.
2017	
Feb–May	“Investigation of Sentiment Analysis and Speech Emotion Recognition” Investigated sentiment analysis and speech emotion recognition using Convolutional Neural Networks, Deep Belief Networks.
2016	
Jan–Mar	“AVA: An Automatic Vibrato and Portamento Detection and Analysis System” Developed as a Matlab Interface which accepts raw audio and automatically tracks the vibrato and portamento to display their expressive parameters for inspection and further statistical analysis. luweiyang.com/research/ava-project
2015	
Oct–Dec	Yamaha project, “Note-level probabilistic transcription of sung melody” Exploring the feasibility of the novel observation distribution, the combination of Gamma distribution and the variant of von Mises distribution, within Hidden Markov Model.
2014	
Nov–Dec	“Exploring Mathematical and Computational Modelling for Portamento” The report was concluded in a MCM 2015 paper showing the Logistic Modelling feasibility.
Aug–Sep	“Vibrato Detection and Analysis Dataset” Including string, woodwind, brass and voice
May–Jul	“Filter Diagonalisation Method for Fundamental Frequency Detection”
2013	
Sep–Dec	“Filter Diagonalisation Method for Music Signal Analysis” The FDM is better suited to the vibrato detection as it has superiority on good time and frequency resolution.
Mar–Jul	“Vibrato Differences between Erhu and Violin” The report was concluded in a CMMR 2013 paper.
2012	
Feb–Apr	Final year project of BSc, “GPS Land Area Calculator” Developed an Android app to calculate the Land Area using the GPS module of the mobile phone. Employed the Kalman Filter to reduce the GPS tracking errors. Supervisors: Prof. Mike Scott(Dublin City University) & Dr. Yan Sun(Queen Mary University of London)
2011	
Nov–Dec	“Fast-roaming solution for wireless LAN based on 802.11 protocol” BUPT university-authorized innovative project Supervisor: Songlin Sun(Beijing University of Posts and Telecommunications)

Professional Activities

2016

Feb 01	Organiser and Artistic Director, 2016 Chinese New Year Concert - the Fusion of Art and Science, Queen Mary University of London, London, UK youtu.be/u1uRW5SQqTk <i>“From my perspective, it was much more than a concert - it was an ‘event’, and a musical journey through time. From the traditional music of China, we moved seamlessly to music inspired by the West to music that collaborated in truly open and dynamic spirit.”</i> from Dr. Paul Edlin, Director of Music, Queen Mary University of London
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2015

Jun 22–25	Communications co-Chair, International Conference on Mathematics and Computation in Music (MCM2015), Queen Mary University of London, London, UK Design and maintenance of website, creation of social media portals, deal with email enquires mcm2015.qmul.ac.uk
Feb 13–15	Organising Team, Mathemusical Conversations: Mathematics and Computation in Performance and Composition, an international workshop jointly hosted by the Institute of Mathematical Sciences and the Yong Siew Toh Conservatory of Music, National University of Singapore, Singapore sites.google.com/site/mathemusicalconversations

Languages

Chinese	Native proficiency
English	Full professional proficiency

Other Interests and Skills

1. Python, Java, Matlab, TensorFlow, Signal Processing, Machine Learning, Latex
2. Internet Programming: JSP + Struts + MySQL framework, PHP + MySQL framework.
3. Erhu (Grade 9), Football, Scuba Diving(PADI Rescue Diver Certificate)