

Luwei Yang

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Personal Statement

A machine/deep learning engineer experienced in recommender algorithms & systems, with research interests mainly on graph embedding and click-through rate prediction.

Work Experience

Nov 2017 – Present	Alibaba Group Senior Algorithm Engineer Recommender Algorithms, Recommender Systems
Feb 2017 – Nov 2017	Huawei Technologies Co., Ltd Research Engineer Chatbot, Sentiment Analysis, Speech Emotion Recognition
2015 Oct – 2015 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

Education

Sep 2012 – Dec 2016	Queen Mary University of London PhD in Electronic Engineering Centre for Digital Music, School of Electronic Engineering and Computer Science Thesis: Computational Modelling and Analysis of Vibrato and Portamento in Expressive Music Performance Supervisors: Prof. Elaine Chew and Dr. Khalid Z. Rajab
Sep 2008 – Jun 2012	Beijing University of Posts and Telecommunications BSc with Honours in e-Commerce Engineering with Law (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

Peer-Reviewed Publications

1. L. Yang, Z. Xiao, W. Jiang, Y. Wei, Y. Hu, and H. Wang, “Dynamic heterogeneous graph embedding using hierarchical attentions,” in *Proceedings of the 42nd European Conference on Information Retrieval*, 2020
2. 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
3. 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
 4. 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
 5. 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
 6. 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
 7. 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
 8. L. Yang, E. Chew, and K. Z. Rajab, “Logistic modeling of note transitions,” in *Mathematics and Computation in Music*, pp. 161–172, Springer, 2015
 9. 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
 10. 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

Projects

May 2019 – Present	“Dynamic Graph Embedding” Create novel methods for dynamic graph embedding.
Oct 2018 – May 2019	“Deep User/Item Representations’ in Recommendation” Applied deep learning-based methods, such as GraphSAGE, GAT, etc, to learn user/item representations.
Mar 2018 – Sep 2018	“User/Item Representation in Recommendation” Applied node2vec and metapath2vec algorithms to learn user/item representations.
Jun 2017 – Nov 2017	“Chatbot of CRM system for Telecom Companies” Investigated and developed the prototype of intent recognition system using information retrieval and machine learning methods.
Feb 2017 – May 2017	“Investigation of Sentiment Analysis and Speech Emotion Recognition” Investigated sentiment analysis using Convolutional Neural Networks.
Jan 2016 – Mar 2016	“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
Oct 2015 – Dec 2015	Yamaha intern project, “Note-level probabilistic transcription of sung melody” Explored the feasibility of a novel observation distribution, and the combination of Gamma distribution and the variant of von Mises distribution in Hidden Markov Model.
Nov 2014 – Dec 2014	“Exploring Mathematical and Computational Modelling for Portamento” The work was reported in a MCM 2015 paper.
Aug 2014 – Sep 2014	“Vibrato Detection and Analysis Dataset” Including string, woodwind, brass and voice
May 2014 – Jul 2014	“Filter Diagonalisation Method for Fundamental Frequency Detection”
Sep 2013 – Dec 2013	“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 2013 – Jul 2013	“Vibrato Differences between Erhu and Violin” The report was concluded in a CMMR 2013 paper.
Feb 2012 – Apr 2012	Final year project of BSc, “GPS Land Area Calculator” 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 & Dr. Yan Sun

Awards and Scholarships

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

Professional Activities

1 Feb 2016	2016 Chinese New Year Concert - the Fusion of Art and Science Queen Mary University of London, London, UK Organiser and Artistic Director <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 youtu.be/u1uRW5SQqTk
22–25 Jun 2015	International Conference on Mathematics and Computation in Music (MCM2015), Queen Mary University of London, London, UK Communications co-Chair Design and maintain the host website, create social media portals, deal with email enquires mcm2015.qmul.ac.uk
13–15 Feb 2015	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 Organising Team sites.google.com/site/mathemusicalconversations

Languages

Chinese	Native proficiency
English	Full professional proficiency

Skills and Interests

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