YIN-JYUN LUO

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EDUCATION

Queen Mary University of London, England   **September 2020 - September 2024 (Expected)**
Ph.D., UKRI CDT in Artificial Intelligence and Music
Supervisors: Simon Dixon and Sebastian Ewert

National Chiao Tung University, Taiwan   **August 2013 - January 2016**
Master of Science, Sound, and Music Innovative Technologies   Overall GPA: 4.15 / 4.30
Supervisor: Tai-Shih Chi
Thesis: *Detection of Common Mistakes in Novice Violin Playing* (Published at ISMIR 2015)

RESEARCH INTEREST

My research topic has focused on learning semantically meaningful feature representations from music audio signals using deep generative models. Disentangling factors of variation within an autoencoder framework facilitates the analysis and synthesis of data-generating variables. The vision is to develop a robust and generic backbone algorithm that enables disentangled representation learning without factor annotations.

SELECTED PUBLICATIONS

- Yin-Jyun Luo, Sebastian Ewert, Simon Dixon. "*Towards Robust Unsupervised Disentanglement of Sequential Data – A Case Study Using Music Audio*," IJCAI 2022.
- Yin-Jyun Luo, Kin Wai Cheuk, Tomoyasu Nakano, Masataka Goto, Dorien Herremans. "*Unsupervised Disentanglement of Pitch and Timbre for Isolated Musical Instrument Sounds*," ISMIR 2020.
- Yin-Jyun Luo, Chin-Cheng Hsu, Kat Agres, Dorien Herremans. "*Singing Voice Conversion with Disentangled Representations of Singer and Vocal Technique Using Variational Autoencoders*," ICASSP 2020.
- Yin-Jyun Luo, Kat Agres, Dorien Herremans. "*Learning Disentangled Representations of Timbre and Pitch for Musical Instrument Sounds Using Gaussian Mixture Variational Autoencoders*," ISMIR 2019.
- Yin-Jyun Luo, Li Su. "*Learning Domain-Adaptive Latent Representations of Music Signals Using Variational Autoencoders*," ISMIR 2018.

RESEARCH EXPERIENCE

Queen Mary University of London, England   **September 2020 - Present**
Ph.D. Research, Supported by Spotify, *Unsupervised Disentangled Representation Learning*
- Investigating alternative priors and generative models to facilitate unsupervised disentanglement.
- Devised inductive biases to more robustly achieve unsupervised disentanglement of time-invariant and time-variant attributes from real-world monophonic music instrument recordings (IJCAI 2022).

National Institute of AIST, Japan   **March 2020 - June 2020**
Research Intern, *Unsupervised Disentanglement of Pitch and Timbre for Isolated Musical Instrument Sounds*
- Proposed an unsupervised approach to disentangle music instrument audio spectrum into discrete pitch and continuous timbre representations (ISMIR 2020).

Singapore University of Technology and Design, Singapore   **September 2018 - July 2020**
Postgraduate Research, *Disentangled Representation Learning Using Variational Autoencoders (VAEs)*
- Developed a sequential Gaussian mixture VAE (GMVAE) to disentangle singer identity and vocal technique, applied to vocal transformation (ICASSP 2020).
- Developed a GMVAE that learns separate latent variables of pitch and timbre of music instruments for sound synthesis and timbre transfer (ISMIR 2019).

Music and Culture Technology Lab, Academia Sinica, Taiwan   **April 2017 - August 2018**
Postgraduate Research, *Singing Voice Pitch Correction by Alignment*
- Developed transferable deep representations for music alignment and singing voice separation (ISMIR 2018).
- Employed canonical time warping to achieve singing voice pitch correction (ICASSP 2018).

Music and Audio Computing Lab, Academia Sinica, Taiwan   **August 2014 - April 2015**
Postgraduate Research, *Detection of Common Mistakes in Novice Violin Playing*
- Built a dataset and used SVMs to classify playing mistakes from violin performances (ISMIR 2015).

SPECIALISED COURSEWORK & SKILLS

- Deep Learning for Audio and Music
- Music Informatics
- Auditory Signal Processing
- Programming: Python, PyTorch, Librosa, Scikit-learn