Lu-Chin Chang

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EDUCATION

Zhejiang University (ZJU) **Hangzhou, China**
Bachelor of Engineering in Computer Science and Technology Sep. 2018-June 2022

- Last 60 credits: 3.39/4.0

CONFERENCE PROCEEDINGS

** indicates co-first author*

Zhang, C.*, **Chang, L.*,** Wu, S.*, Tan, X., Qin, T., Liu, T. Y., & Zhang, K. (2022, October). Relyme: Improving lyric-to-melody generation by incorporating lyric-melody relationships. In *Proceedings of the 30th ACM International Conference on Multimedia* **(Oral Presentation)**

Zhang, C.*, Yu, J.*, **Chang, L.*,** Tan, X., Chen, J., Qin, T., & Zhang, K. (2022, December). PDAugment: Data Augmentation by Pitch and Duration Adjustments for Automatic Lyrics Transcription. In *ISMIR 2022 Hybrid Conference*

RESEARCH

NextLab, ZJU

ReLyMe: Improving Lyric-to-Melody Generation by Incorporating Lyric-Melody Relationships

Paper Link | Open Source | Advisors: Prof. Kejun Zhang and Dr. Xu Tan (MSRA) Sep. 2021-Apr. 2022

- Project partnering with MSRA for improving quality of melody generated from data-driven models using theory relating lyrics and melodies in tone, rhythm, and structure; also part of the Microsoft Muzic open source library
- Designed modules to assess the quality of melody for use with Sklearn and Miditoolkit; proposed a method to incorporate music theory into model outputs in training and inferring phases
- Co-author for paper on its significant enhancements in 16% better objective and 9% better subjective evaluations

PDAugment: Data Augmentation by Pitch and Duration Adjustments for Automatic Lyrics Transcription

Paper Link | Open Source | Advisors: Prof. Kejun Zhang and Dr. Xu Tan (MSRA) Oct. 2020-June 2021

- Of the same relationship as **ReLyMe** with MSRA and Muzic, it targeted at developing a data augmentation method to enhance the performance of ALT models
- Designed Pitch Augmenter (adjusting pitch) and Speech-Note Aligner (aligning melody / speech data) in data augmentation with open-source tools (Librosa / PyWorld / Miditoolkit, etc.); output 900+ hours vocal audio data
- Co-authored paper on using Espnet to train the ALT model that outperformed 24.9% WER vs. previous SOTA

EXPERIENCE

Genius Star Management Company Aug. 2022-Feb. 2023
Intern Engineer, R&D Department

- Worked with a senior engineer on resistance calculations of research vessel designed for Taiwan Ministry of Science and Technology thru Computing Fluid Dynamics (CFD) of 95%+ accuracy vs. measurement
- Constructed full-parameter models for the CFD calculation for new designs onwards

RELEVANT PROJECTS

Automatic Lyric Animation Generation System, Student Research Training Project Feb. 2020-June 2020

- Aimed at creating an automatic animation system generating visuals for live concerts; constructed back-end and interface using Python Flask; integrated web crawler for retrieving audio / lyrics as input, modules for music information retrieval, and API for communicating with the front-end
- Analyzed mainstream pop songs and designed rules for mapping music features to animation generation elements (hues, fonts, layouts, etc.)
- The system was used by ZJU Music Festivals to generate the background visualization

SKILLS

Programming: Python, Java, C, C++, Ruby, Verilog
Machine Learning Framework: Pytorch, TensorFlow, Fairseq, Sklearn, NumPy