Yicheng Gu

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KEY SKILLS

Solid Domain Knowledge: Extensive knowledge of Deep Learning and Digital Signal Processing; specifically applied to Neural Vocoder, Neural Audio Codec, and Digital Audio Effects.
Multi-disciplinary: Experience encompassing Research, Open Source System Development, Commercial Sound Design, and Music Production.

EDUCATION

The Chinese University of Hong Kong, Shenzhen　　　　　　　　　　　　Shenzhen, China
Bachelor of Engineering in Computer Science and Engineering　　　　　　*Sep. 2022 – Present*

- GPA: 3.959 / 4.0, Ranking: 2 / 314 (Top 1%)

EXPERIENCE

Human Language Technology Lab　　　　　　　　　　　　　　　　　Shenzhen, China
Research Assistant, School of Data Science, CUHK-Shenzhen　　　　　　*Oct. 2022 – Present*
Supervisor: Prof. Zhizheng Wu

- Singing Voice Conversion
  * Investigated characteristics and the complementary role of different Content-Based Features for the Singing Voice Conversion system, accepted by the Machine Learning for Audio Workshop at NeurIPS 2023.
- Next Generation Universal Vocoder
  * Built a Discriminator based on the Constant-Q Transform via Representation Learning and explored its complementary role with Short-Time Fourier Transform to improve the GAN-based Vocoder's synthesis quality, accepted by ICASSP2024.

PUBLICATIONS

Yicheng Gu, Xueyao Zhang, Liumeng Xue, Zhizheng Wu, "Multi-Scale Sub-Band Constant-Q Transform Discriminator for High-Fidelity Vocoder," ICASSP 2024.

Xueyao Zhang*, Liumeng Xue*, Yuancheng Wang*, **Yicheng Gu***, et al., "Amphion: An Open-Source Audio, Music and Speech Generation Toolkit"

Xueyao Zhang, **Yicheng Gu**, et al., "Leveraging Content-based Features from Multiple Acoustic Models for Singing Voice Conversion," Machine Learning for Audio Workshop at NeurIPS 2023.

PROJECTS

Amphion
An Open-Source Audio, Music and Speech Generation Toolkit

- Migrate and adapt various well-known, widely used, or SOTA vocoders into our system, including: MelGAN, HiFi-GAN, BigVGAN, NSF-HiFiGAN, APNet, etc.
- Release pre-trained Vocoder checkpoints, which achieve the SOTA performance.
- Integrate comprehensive Objective Evaluation Metrics to the framework.

Honors and Awards

- "LanHuaYing" Scholarship (Top 10 admitted students in Zhejiang Province, 2022)

- The Academic Performance Scholarship, Class B (Top 3%, 2023)

- University Entrance Scholarship (Top 0.7% in Zhejiang Province, 2022)

- Gold Award of the 2019 Shanghai STEED Programming Contest (Top 3, 2019)

- First Prize of the 16th Youth Computer Robot Competition in Provinces (Top 3, 2019)

- Deans List (Top 10%, 2022)

- Bowen Entrance Scholarship (2022)

- Undergraduate Research Award (2023, 2024)

Cross-disciplinary Abilities

Music Production: experienced in Composing, Mixing, and Mastering for different genres including Pop, Electronic, etc.
Sound Design: experienced in Sound Designing for movie, game, etc.