Lejun Min

Researcher, Artist
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EDUCATION

Center for Computer Research in Music and Acoustics (CCMRA), Stanford Starting in Sept. 2024
Master of Music, Science, and Technology (Admitted, Enrollment Deferred) Palo Alto, California

- Potential collaboration with Prof. Julius O. Smith.

Zhiyuan College, Shanghai Jiao Tong University Sept. 2019 – June 2023
Bachelor of Engineering in Computer Science Shanghai, China

- Member of **ACM Honor Class**, an elite CS program for **top 5%** talented students.
- GPA: 88.5 / 100 (**top 10 student**).

PUBLICATIONS

Xingwei Qu, Yuelin Bai, Yinghao Ma, Ziya Zhou, Ka Man Lo, Jiaheng Liu, Ruibin Yuan, **Lejun Min**, Xueling Liu, Tianyu Zhang, Xinrun Du, Shuyue Guo, Yiming Liang, Yizhi Li, Shangda Wu, Junting Zhou, Tianyu Zheng, Ziyang Ma, Fengze Han, Wei Xue, Gus Xia, Emmanouil Benetos, Xiang Yue, Chenghua Lin, Xu Tan, Stephen W. Huang, Wenhu Chen, Jie Fu, Ge Zhang, "MuPT: A Generative Symbolic Music Pretrained Transformer", submitted to *Proc. 1st Conference on Language Modeling (COLM 2024)*. [arXiv]

Ziyu Wang, **Lejun Min**, Gus Xia, "Whole-song Hierarchical Generation of Symbolic Music Using Cascaded Diffusion Models", **Spotlight (top 5%)** in *Proc. 12th International Conference on Learning Representations (ICLR 2024)*, Vienna, May 2024. [OpenReview]

Lejun Min, Junyan Jiang, Gus Xia, Jingwei Zhao, "Polyffusion: A Diffusion Model for Polyphonic Score Generation with Internal and External Controls", in *Proc. 24th International Society for Music Information Retrieval Conference (ISMIR 2023)*, Milan, November 2023. [arXiv] [poster]

ACADEMIC EXPERIENCE

Hierarchical Generation and Performance Rendering of Symbolic Music Sept. 2023 - Feb. 2024
Research Assistant at MBZUAI Abu Dhabi, UAE

- Designed and implemented comprehensive experiments for the hierarchical generation of symbolic music, with a cascaded diffusion model as backend.
- Experimented on performance rendering for symbolic music using Transformer architecture.
- Advisor: Prof. Gus Xia.

Controllable Symbolic Music Generation with Diffusion Models June 2022 – Dec. 2022
Research Assistant at MBZUAI Abu Dhabi, UAE

- Achieved state-of-the-art polyphonic music generation using diffusion models.
- Devised two control paradigms for music generation in the diffusion model framework: internal control via masked generation, and external control via cross-attention mechanism.
- Advisor: Prof. Gus Xia.

Deep Learning on Piano Reduction and Orchestration Jan. 2022 – May 2023
Researcher at Music X Lab, New York University, Shanghai Shanghai, China

- Projected piano and orchestral scores to a joint latent space with variational autoencoders.
- Applied contrastive learning on the latent space with end-to-end autoencoder training.
- Advisor: Prof. Gus Xia.

Approximating Holant problems in 3-regular graphs Sept. 2021 – Dec. 2021
Researcher at John Hopcroft Center for Computer Science Shanghai, China

- Constructed gadgets for approximation of Holant problems in 3-regular graphs.
- Applied complexity results from Ising Model to Holant problems by reduction.
- Advisor: Prof. Chihao Zhang.

TEACHING

Design and Analysis of Algorithms (AI2615) Spring 2022
Teaching Assistant at SJTU Shanghai, China

- Prepared well-written standard answers for class assignments.
- Graded homework and final exam.
- Lecturer: Prof. Chihao Zhang.

Principle and Practice of Computer Algorithms (CS1952) Summer 2021
Teaching Assistant at SJTU Shanghai, China

- Designed a comprehensive ray tracing tutorial written in the Rust language. The repository received 100+ stars on GitHub.
- Designed algorithm programming tests for grading.
- Supervisor: Prof. Yong Yu.

LANGUAGE PROFICIENCY

TOEFL: **112** (Reading **30**, Listening **30**, Speaking **24**, Writing **28**)
GRE: Verbal **162**, Quantitative **170**, Writing **4.0**

SKILLS

Computer Science Skills

- C, C++, Python, Java, Rust, Verilog, Git.
- Proficient in machine learning coding, strategies and frameworks.
- Experienced in designing compilers, architecture, and computer systems.
- Sophisticated skills in managing projects and debugging.
- Linux and open-source software enthusiastic.
- Experienced in Unity game development and audio plugin development using JUCE framework.

Musical Abilities

- Guzheng (the Chinese zither) Performance Level 10 (the highest nonprofessional level in China) qualified.
- Piano Performance Level 10 qualified.
- Singing Performance Level 6 qualified.
- Proficient in electronic music production and mixing.
- Published an electronic music piece under Chinese Electronic Music (CEM) Records, one of the most prestigious electronic music labels in China.

Artistic Capacities

- Trained on pencil sketching and pastel painting.
- Well-versed in world literature.
- Experienced in 3D modeling.

LEADERSHIP

Zhihui Camp, Zhiyuan College Sept. 2020
Group Leader Shanghai, China

- Led a team of 10 students in knowledge contests, volunteering and several social activities.
- Ranked first among 12 groups from Zhiyuan College.

Zhiyuan Traditional Culture Festival May 2020

Group Leader Shanghai, China

- Directed, filmed and edited an online traditional Chinese music ensemble.
- Won the first prize.

Dongfang Lüzhou Soirée (Freshmen Welcome Party) Dec. 2019

Performance Director Shanghai, China

- Directed an on-stage mime performance comprising dance, singing and interactive installations.
- Won the Silver Prize among 7 groups.