

Guoguo Zhang

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EDUCATION

- Royal Conservatoire of Scotland
MMus in Piano Performance 09/2024 - 06/2026 (Expected)
Glasgow, UK
- Sun Yat-sen University
Bachelor of Fine Arts 09/2020 - 07/2024
Guangzhou, China

PUBLICATIONS

- [1] Wanjuan Hu, Guanyi Li, Guoguo Zhang, Liang Chang, Dan Zeng. "Learning Instructive Frequency Spectral and Curvature Features for Cloud Detection". In: *IEEE Geoscience and Remote Sensing Letters*, vol. 22, Art. no. 5001605, pp. 1–5, 2025.
- [2] Qijian Xu, Yutong Liu, Xinran Yuan, ..., Guoguo Zhang[†]. "Harnessing auditory laughter to enhance pain tolerance: insights into its psychophysiological mechanisms". Manuscript submitted to *Journal of Cognitive Neuroscience*.

[†] DENOTES CORRESPONDING AUTHOR

RESEARCH EXPERIENCE

- Music Technology & Education 01/2024 – present
Yanshan University, Researcher & PI; Teaching Assistant QinHuangDao, China
 - Teaching Assistant (Music Technology) — Led weekly labs; demonstrated DAW and notation workflows.
 - AI-based Music Therapy System — Designed end-to-end pipeline from EEG intake to musical feedback. Deployed at Peking University International Hospital, Henan Medical University.
 - Real-Time Digital Human Dialogue System — Built low-latency streaming stack with avatar rendering; integrated WebRTC for duplex A/V. Deployed at the Heilongjiang Provincial Court, China Post Group.
 - Clinical RCT on 'Jue' Mode Music (ICU Delirium) — Coordinated ICU data collection and patient monitoring; lead digital signal processing and data analysis.
- AI Vocal Coach 05/2025 – 10/2025
Beijing Normal University, Research Assistant Beijing, China
 - Designed a real-time audio DSP pipeline for instant vocal assessment, including F0, formant resonances, and vibrato to evaluate singers' vocal technique, pitch accuracy, and rhythm; a LLM feedback
- Instrument Timbre Transfer & Source Separation 05/2025 - Present
University of Science and Technology Beijing, Research Assistant Beijing, China
 - Researching ML-based instrument sound transformation for timbre transfer and source separation (ongoing).
- Computer Music Synthesis and Composition 06/2025 - 08/2025
Carnegie Mellon University, Advisor: Prof. Roger B. Dannenberg Pittsburgh, USA
 - Built synthesis demos in Nyquist and drafted a paper on computer-assisted composition.

PERFORMANCE EXPERIENCE

- Carnegie Hall Featured Choir Concert New York, USA 2015
- American Choral Directors Association (ACDA) National Conference Showcase Chicago, USA 2018
- First Prize in The Fifth Asian International Piano Grand PRIX Guangzhou, China 2024

WORK EXPERIENCE

- Nova International Education LLC 03/2024 – Present
Software Engineer, Music Teacher San Leandro, USA
 - Contributed to development of Simploy AI (Johns Hopkins University community), implementing multimodal affect and attention-detection systems.
 - 1:1 & small-group teaching in performance, theory, and aural skills. Organize student recitals and ensembles.
- Algorithms & Software Engineer Intern 03/2024 - 09/2024
Shenzhen Guangzongheng Software Co., Ltd Shenzhen, China
 - Participated in software development.
- Pianist Intern 12/2024 - 01/2025
Hillington Park Church of Scotland Glasgow, UK
 - Performed at weekly services and Christmas Eve concerts with choir.

SKILLS

- **Music Skills:** Piano, Vocal, Guitar, Accordion
- **Programming Languages:** Python, JavaScript, HTML, SQL, TypeScript, React, Vue, WebGL
- **Deep Learning Toolkits:** Pytorch, Hugging Face Libraries