

Guoguo Zhang

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EDUCATION

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

PUBLICATIONS

† DENOTES CORRESPONDING AUTHOR

- [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] Qiujuan 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*.

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