ZIXUN NICOLAS GUO

Email: zixun.guo@qmul.ac.uk, nicolas.guozixun@gmail.com
Google Scholar: scholar.google.com/ZixunNicolasGuo
Mobile: +65-8262-9906
LinkedIn: linkedin.com/in/nicolas-guozixun/
Website: guozixunnicolas.github.io/

Education

- **Queen Mary University of London, UK** — Sep 2023 - Present
  PhD Researcher in AI and Music (Center for Digital Music; AIM CDT)
- **Nanyang Technological University (NTU), Singapore** — Aug 2016 - Jun 2020
  BEng Electrical and Electronic Engineering (Highest Distinction Honors); CGPA:4.74/5.00
- **KTH Royal Institute of Technology, Sweden** — Aug 2018 - Jan 2019
  Overseas exchange program in the School of Electrical Engineering and Computer Science

Industry Research Experience

- **Meta, USA and UK** — Oct 2025 - Sep 2026
  Research Scientist Intern
  - **Topic**: Spatial Music Binauralization via Audio LM post-training. Host: Ishwarya Ananthabhotla
  - **Collaboration**: Agentic Optimization for Asynchronous RL Post-training. Host: Xubo Liu
- **Spotify, London, UK** — June 2025 - Aug 2025
  Research Scientist Intern
  - **Topic**: Large-Scale Music Understanding via Masked Language Modeling. Host: Yu Wang, Jan Van Balen
- **IRIS Audio, London, UK** — May 2024 - Dec 2024
  Research Scientist Intern (Part-time)
  - **Work Scope**: Deploying one of my research works to IRIS' training pipeline

Research Experience

- **Center for Digital Music, Queen Mary University of London** — Sep 2023 - Present
  PhD Researcher (Full-time)
  - **Topic**: Multimodal Foundation Models for Music; Supervised by Prof. Simon Dixon, Mentored by Prof. Eran Egozy
- **AMAAI Lab, Singapore University of Technology and Design (SUTD)** — Aug 2020 - Sep 2023
  Senior Research Assistant (Full-time)
  - **Topic**: Controllable Music Generation using Transformers and Diffusion; Supervised by Prof. Dorien Herremans
  - **Topic**: Noise Robust AI; Supervised by Prof. Ernest Chong
- **Digital Signal Processing Lab, Nanyang Technological University (NTU)** — Aug 2019 - Jun 2020
  Research Student (Thesis)
  - **Topic**: Text-to-sound Generation; Supervised by Prof. Gan Woon-Seng
- **Speech and Language Lab, Nanyang Technological University (NTU)** — Apr 2019 - Aug 2019
  Research Intern
  - **Topic**: DDSP-based Speech Data Augmentation; Supervised by Prof. Chng Eng Siong
- **Desay SV Automotive, Singapore** — Jan 2019 - Apr 2019
  Research Intern
  - **Topic**: Self-driving; Automatic Lane Detection; Supervised by Dr. Wu Xiaojun

Selected Publications

- **Z. Guo**, C. Murdock, S. Parekh, WO. Brimijoin, S. Dixon, J. Reiss, I. Ananthabhotla, "SPHERE: Automatic Music Upmixing via Audio Language Model Post-Training with Spatial Heuristics Rewards", in EMNLP 2026.
- **Z. Guo**, Y. Yuan, R. Xie, I. Ananthabhotla, X. Liu "Agentic Optimization for Asynchronous RL Post-Training", submitted to ICLR 2026.
- **Z. Guo**, S. Dixon, "Equivariant Music Transformer", in ISMIR 2026 **Best Paper Award Nominee**.
- **J. Melechovsky* Z. Guo***, D. Ghosal, N. Majumder, D. Herremans, S. Poria, "Mustango: Toward Controllable Text-to-Music Generation", in NAACL 2024, ***indicates co-first authorship**.
- **X. Riley***, **Z. Guo***, D. Edwards and S. Dixon "GAPS: A Large And Diverse Classical Guitar Dataset And Benchmark Transcription Model", in ISMIR 2024. ***indicates co-first authorship**.
- **Z. Guo**, J. Kang and D. Herremans, "A Domain-Knowledge-Inspired Music Embedding Space and a Novel Attention Mechanism for Symbolic Music Modeling", in AAAI 2023.
- **Z. Guo**, S. Dixon, "Moonbeam: a MIDI Foundation Model using both Absolute and Relative Music Attributes", Arxiv Pre-print.
- **Z. Guo**, C. Chen and E. Chng, "DENT-DDSP: Data-efficient Noisy Speech Generator Using Differentiable Digital Signal Processors for Explicit Distortion Modeling and Noise-robust Speech Recognition", in INTERSPEECH 2022.
- **Z. Guo**, D. Makris and D. Herremans, "Hierarchical Recurrent Neural Networks for Conditional Melody Generation with Long-term Structure", in International Joint Conference on Neural Networks (IJCNN), 2021.
- D. Makris, **Z. Guo**, M. Kaliakatsos-Papakostas, D. Herremans, "Conditional Drums Generation Using Compound Word Representations", in EvoMUSART 2022.

Invited Talks

- **MIT Media Lab**, Text-to-Music using Mustango. May 2024

Awards and Prizes

- **ISMIR 2026 Best Paper Award Nominee**
- **Super AI Leader Award** (World Artificial Intelligence Conference (WAIC) 2024, World Top 30).
- **PhD Studentship, UKRI CDT in Artificial Intelligence and Music at C4DM, QMUL** (Full scholarship with stipends for a 4-year PhD program, Acceptance Rate: 13.5%).
- **NTU Science and Engineering Scholarship** (Full scholarship with stipends for a 4-year undergraduate program).
- **CHIME Travel Grant (ISMIR 2024)** (2000 GBP).
- **Defence Science & Technology Agency Gold Medal** (NTU Best Undergraduate Thesis Award 2020, Top 1).
- **ST engineering book prize** (1500 SGD; Highest marks in the course: Embedded Systems)
- **Motorola book prize** (300 SGD; Highest marks in the course: Digital Communications)
- In the **Dean's List (NTU)** in Academic Year 2016 - 2017, 2019 - 2020 (Top 5%).

Skills and Strengths

- **AI Frameworks and Tools:** Tensorflow, Pytorch, Claude Code, Codex
- **Distributed Training:** Ray, Torch.distributed
- **Languages**: Python, C, Matlab, Labview, Puredata
- **Tools:** Overleaf, Latex, Docker, Git

Academic Service

- **Teaching:** Teaching Assistant for Computational Data Science, SUTD in AY2020-2021
- **Project Supervision:** Undergraduate Research Opportunities Program (UROP, Supervising 5 students as a group on CNN-based Generative Model for an entire academic year), SUTD in AY2022-2023
- **Reviewer:** NeurIPS, ICLR, ISMIR, AI Music Creativity (AIMC)
- **Volunteering**: ICASSP 2022, ISMIR 2024