

GUO ZIXUN NICOLAS

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EDUCATION

- **Queen Mary University of London, UK** Aug 2023 - Present
PhD Researcher in AI and Music
- **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

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](#)
- **AMAAI Lab, Singapore University of Technology and Design (SUTD)** Aug 2020 - Sep 2023
Senior Research Assistant (Full-time)
 - **Topic:** Sound and Music Modeling, Music Emotion Analysis; 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:** Neural Sound Generation; Supervised by [Prof. Gan Woon-Seng](#)
- **Speech and Language Lab, Nanyang Technological University (NTU)** Apr 2019 - Aug 2019
Research Intern
 - **Topic:** Deep 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](#)

INDUSTRIAL EXPERIENCE

- **IRIS Audio, London, UK** May 2024 - Present
Research Scientist Intern (Part-time)
 - **Work Scope:** Deploying one of my research works to IRIS' training pipeline

PUBLICATIONS

- **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**.
- **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**, 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.
- **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**, 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**, Text2Music using Mustango: Inspiration, Approaches, and Future Paths. May 2024

PROJECTS

- **The Use of Music for Reporting Mood in People with Autism** Aug 2021 - Present
in collaboration with SingHealth and Duke NUS; Principal Music Composer
Wrote music pieces with various valances, arousals and musical modes which convey different emotions and will be used to examine the effect of music in helping people with Autism.
- **Text2Audio: Neural Environmental Sound Generation** Apr 2019 - May 2020
NTU Final Year Project; Best Final Year Project Award; Supervisor: Prof. Gan Woon-Seng
Developed an RNN-based text-to-audio system that can generate environmental sound with text inputs as conditions.
- **Guitar Effect Simulator using Raspberry Pi with a Web Controller** Jan 2020 - May 2020
NTU Design and Innovation Project; Project initiator and team leader of 5
Developed a guitar effect simulator which contains various settings (e.g., equalizer, reverb, delay) controlled by a self-designed web controller using Raspberry Pi.
- **FM synthesizer using NI MyRio** Jan 2020 - May 2020
NTU Embedded System Course Project
Developed an embedded FM (frequency modulation) synthesizer using NI MyRio which is able to synthesize musical sounds of various instruments such as bassoon, clarinet, drum.

AWARDS AND PRIZES

- **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%).
- **Defence Science & Technology Agency Gold Medal** (NTU Best Undergraduate Thesis Award 2020, Top 1).
- **NTU Science and Engineering Scholarship** (Full scholarship for a 4-year undergraduate program).
- **ST engineering book prize** (Highest marks in the course: Embedded Systems).
- **Motorola book prize** (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

- **Languages:** Python, C, Matlab, Labview
- **Frameworks:** Tensorflow, Pytorch
- **Tools:** Overleaf, Latex, Docker, Git, Puredata
- **Music:** Songwriting, Music Theory, Improvisation

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 GNN-based Generative Model for an entire academic year), SUTD in AY2022-2023
- **Reviewer:** AI Music Creativity (AIMC)
- **Volunteering:** ICASSP 2022