# JUNHAO WANG

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## EDUCATION

**Master of Arts, Music Technology**                                    September 2020 - Present
McGill University, Montreal, QC, Canada

- Distributed Digital Music Archives & Libraries Lab (DDMAL), Advisor: Prof. Ichiro Fujinaga
- Centre for Interdisciplinary Research in Music Media and Technology (CIRMMT)
- GPA: 4.0 / 4.0

**Bachelor of Engineering, Digital Media Technology**                    September 2016 - July 2020
Communication University of China, Beijing, China

- Key Laboratory of Media Audio and Video, Ministry of Education
- GPA: 3.46 / 4.0
- Outstanding Bachelor thesis on symbolic music generation

## PROJECT HIGHLIGHTS

**Guitar Plucking Technique Classifier**

- Spectral and timbral feature extraction from guitar audio recordings
- String number and plucking style detection using SVM classifier

**HPCP Key Finder**

- Spectral analysis for extracting Harmonic Pitch Class Profiles (HPCP) from polyphonic audio signals
- Key estimation based on correlation with key profile templates

**Impulsive Noise Remover**

- Audio restoration for gramophone recordings
- Impulsive noise (clicks) detection and removal based on autoregressive modelling

**Electric Guitar Synth**

- Plucked string sound synthesis using extended Karplus-Strong algorithm
- Audio effects (glissandi, tone control, distortion, feedback) emulation

## EXPERIENCE

**Research Assistant**                                                   September 2020 - Present
Distributed Digital Music Archives & Libraries Lab (DDMAL)                       *Montreal, QC, Canada*

- Django web development for Cantus DB (symbolic music database website)
- Experience with Compute Canada cloud infrastructures

**Audio Research Intern**                                              May 2021 - September 2021
Ubenwa Intelligence Solutions                                                   *Montreal, QC, Canada*

- Develop signal processing routines for analyzing infant cry sounds
- Detect five pathological acoustic patterns in specialized infant cry audio dataset

**Local Coordinator**                                                              October 2020
The 21st International Society for Music Information Retrieval (ISMIR) Conference   *Montreal, QC, Canada*

- Host conference events and support virtual conference platforms

- Coordinate volunteers and session organizers

**Research Assistant** | May 2019 - July 2020
Key Laboratory of Media Audio and Video, Ministry of Education | *Beijing, China*

- Develop algorithms for symbolic music generation and style translation
- Analyze and evaluate deep learning models for music analysis and generation tasks

**Student Participant** | July 2019 - August 2019
University of British Columbia (ECE department) | *Vancouver, BC, Canada*

- 4-week summer program on computer music, covering acoustics, signal processing, and audio programming
- Final grades: 95 / 100 (A+)

## RESEARCH INTEREST

I'm interested in **Audio Signal Processing & Machine Learning** tasks in general. At the moment, I'm actively working on the following topics:

- Automatic guitar transcription
- Audio pattern (e.g., vibrato, pitch bend, harmonics) detection
- Audio effects implementation and detection

## SKILLS

**Programming Language and Software:** Python, Matlab, Git, Docker
**Machine Learning:** Scikit-learn, PyTorch
**Web Development:** Django, HTML, CSS, JavaScript
**Instrument:** Guitar player for 7 years, band member for 3 years
**Language:** English-IELTS 8.0, Chinese Mandarin-native

## HONORS

- Graduate Internship Award — *McGill University, 2021*
- Outstanding Bachelor Research — *Communication University of China, 2020*
- Academic Excellence Scholarships — *Communication University of China, 2017-2019*