Maxwell Gentili-Morin

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Education

Schulich School of Music of McGill University — Montreal, Quebec
M.A. in Music Technology — *2022 – 2024 (Expected)*

McGill University — Montreal, Quebec
B.Sc. Joint major in Physics and Computer Science; ***GPA: 3.37/4.00*** — *2018 – 2022*
Minor in Music Science and Technology — *2020 – 2022*

Marianopolis College — Montreal, Quebec
Double DEC - Music and Science — *2015 – 2018*

Research Experience

Input Devices and Music Interaction Laboratory , McGill University — Montreal, Canada
Master Research Assistant — *2022*

- Worked with my supervisor Marcelo Wanderley to bring the Digital Music Device called The Rulers into operational order.
- Rewrote the entire code for the micro-controller and fixed any missing or broken parts.
- Using Python I analyzed and optimized the placement of the magnets and hall effect on the Rulers to minimize noise.
- Used a z-transform and a multiple of different averaging methods in order to normalize and sanitize the data.

Input Devices and Music Interaction Laboratory , McGill University — Montreal, Canada
Master Research Assistant — *2023 – Present*

- Worked with my supervisor Marcelo Wanderley to develop new educational tools to learn about the theory behind signal processing like Analogue to Digital Conversion.
- Using JavaScript I am updating an existing github webpage to make it more accessible to students who have no prior knowedge about signal processing.

Awards & Achievements

Undergraduate Student Research Award (USRA): Awarded to undergraduate students to encourage and gain experience in the research fields of health, nature sciences, engineering, social sciences or humanities.

Supplements of the NSERC Undergraduate Student Research Awards - USRA (BPCA)

CIRMMT Student Awards: This award enables students to pursue interdisciplinary research projects within the Centre's mandate.

CIRMMT ResonatorTube Contributor Funding: With this award, students are invited to conceive and help produce entertaining and educational videos, to be shared on a dedicated YouTube channel.

Projects

Modeling of Bucket Brigade Device guitar pedal circuits PHYS 489 — Summer 2021 – 2022

- Natural Sciences and Engineering Research Council of Canada
- Undergraduate Student Research Award
- Worked at the Input Devices and Music Interaction Laboratory to develop and understand a simulation in FAUST C++ and Matlab of bucket brigade guitar delay effect pedals.
- Modeled 2^{nd} order Low Pass Filters using Matlab to calculate it's coefficients and then implemented it in FAUST and C++.
- Compared and contrasted the FAUST and C++ versions with working samples and detailed their differences.

Data analysis of a Hall Effect Sensor — Fall 2022

- Working in a team of three, we analyzed and understood the underlying physics associated with Hall Effect Sensores for our class PHYS 340

Skills

Programming: C, C++, Java, Python, MATLAB, JavaScript, Max/MSP, Pure Data

Technologies: Git, Arduino, Simulink, LTspice

Languages: English (Native), English/French (Professional), French (Secondary)

Relevant Coursework

Major coursework: Calculus 1 through 4, Linear Algebra, ODE, Probability, Classical Mechanics, Quantum Mechanics, Electricity and Magnetism, Signal Processing,Algorithm Design ,Introduction to Haptic Information Design, Digital Sound Synthesis & Audio Processing,

Minor coursework: Intro to Software Systems, Intro to Computer Science, Intro to Digital Audio, Intro to C++,

Organizations

Centre for Interdisciplinary Research in Music Media Technologies (CIRMMT) *2021 – Present*
Student Member

Input Devices and Music Interaction Laboratory (IDMIL) *2022 – Present*
Master's Student