



# Patrick Ignoto

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## Education

2015–2017 **Master of Arts, Music Technology**, *McGill University*, Montreal, *GPA: 3.92*.  
In process of completing final thesis on human-computer interaction and music.

2007–2011 **Bachelor of Engineering, Electrical Engineering**, *Concordia University*, Montreal,  
*GPA: 3.45*.  
Degree conferred with distinction.

## Master's thesis (forthcoming)

title *Development and Implementation of a Vibrotactile Click Track to Assist Contemporary Music Conducting*

supervisor Marcelo M. Wanderley

description Contemporary orchestras often perform pieces that require synchronizing to an external audio source. These pieces use an auditory click track, played through an earpiece a conductor is wearing, to accurately follow the tempo. This can be intrusive to the conductor, who is trying to listen to the music being performed by the orchestra. An alternative using the sense of touch was developed by gathering requirements through qualitative interviews with an expert conductor. The final design met the requirements the conductor envisioned from the interviews.

## Experience

2016–2017 **Webcast Engineer**, *McGill University*, Montreal.  
Worked on live webcasts of Schulich School of Music concerts.

Job Tasks:

- Create title and credit cards in Adobe InDesign.
- Use Wirecast program to overlay cards on live video broadcast at the correct time.
- Monitor audio levels and video feed for errors; troubleshoot when errors occur.

2016 **Casual Research Assistant**, *McGill University*, Montreal.

Assisted with research work on existing project

Job Tasks:

- Worked with PhD candidate in testing, manufacturing, and programming wireless haptic devices at the Input Devices and Music Interaction Laboratory (IDMIL)
- Devices were then used for multi-sensory art installation presented at Chronus Art Centre in Shanghai, China

2012–2015 **Technical Writer**, *Matrox Electronic Systems*, Dorval.

Developed user guides and manuals for hardware and software products

Job Tasks:

- Documenting and editing user guide and reference material using XML for a C/C++ software library related to image processing and analysis.
- Documenting and editing hardware manuals using Adobe FrameMaker for PC boards used to acquire and process images.
- Worked with programmers and engineers during the design process, which helped provide feedback regarding the usability of features.
- Testing the compiled help file and ensuring that standards are upheld throughout the documentation.
- Learned excellent technical communication skills and about the software development process.

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## Awards

**Best Overall Design** Developed two products with team to help teach undergraduate students electromagnetics with haptics. Devices were demoed for the Student Innovation Challenge at 2017 IEEE World Haptics Conference in Germany and won the highest award.

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## Technical skills

- Hardware**
- Testing of small scale electronics and communication systems using oscilloscope, spectrum analyzer, and DMM.
  - Using Arduino and Raspberry Pi products for electronic interfaces.
  - Testing of small scale RF and microwave frequency devices (waveguides, transmission lines, antennas) using network analyzers, frequency sweepers, etc.
- Software**
- MATLAB
  - MAX/MSP
  - Programming in C++ and C# using Microsoft Visual Studio 2012.
  - Programming in Python.
  - Git and TortoiseSVN repository tools
- Design**
- Design of haptic interfaces for assisting musical performance and education of electromagnetics.
  - Design of electronic interfaces for musical expression, robotics and digital systems.
  - Antenna design (wire, microstrip, dipole, etc.).
  - Impedance matching microstrip circuits for microwave systems design.
- Writing**
- Writing technical papers to present work at a conference.
  - Writing technical and user documentation for hardware products related to the acquisition and processing of images.
  - Writing reference and user documentation for a software API related to the processing and verification of images.

## Projects Undertaken

This is a list of projects done for course credit that have never been formally published. Descriptions of all projects can be seen at my personal webpage.

- The Batons
- Linear Prediction Coding
- Computational Model of Moog VCF
- Cepstrum Analysis
- MIDI Drum Kit
- Tactile EMF Sandbox

## Languages

English Mother Tongue  
French Fluent  
Italian Good command

## Publications

- [1] Patrick Ignoto, Ian Hattwick, and Marcelo M. Wanderley. Development of a vibrotactile metronome to assist in conducting contemporary classical music. In Jessie Chen, editor, *Proceedings of the 2017 International Conference on Applied Human Factors and Ergonomics: Advances in Human Factors in Robots and Unmanned Systems*, pages 248–258, Cham, 2017. Springer International Publishing.