Parker King-Fournier

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Education

- **McGill University** — Montreal, QC
  B.Sc., Computer Science & Biology — *Sep. 2013 - Aug. 2018*

  - Relevant courses: Calculus, Discrete Mathematics, Linear Algebra, Probability Theory, Statistics, Software Systems, Algorithms and Data Structures, Artificial Intelligence, Computational Biology Methods, Applied Machine Learning, Computer Graphics, Independent Research Project in Machine Learning and Ecology

- **McGill University** — Montreal, QC
  B.Mus., Trumpet — *Sep. 2013 - May 2018*

  - Relevant courses: Music and Audio Computing 1 & 2
  - Studied under the tutelage of Andrew Dunn (Trinity Laban Conservatoire of Music and Dance), Chris Smith (San Diego Symphony) and Russel DeVuyst (Orchestre symphonique de Montréal)

Skills

Languages: English (first language), French (strong spoken and written)

Programming Languages: Bash, C, C++, Objective C, Java, Java Card, Javascript, Python, Matlab, R, LaTeX, Max/MSP, Pure Data, PHP, HTML

Libraries: TKinter, Tensorflow, PyTorch, EchoTorch, NumPy, Matplotlib, OpenGL, GLSL, JSON, Swing (Java)

Applications: XCode, Mathematica, MatLab, LaTeX, Microsoft Office Suite, Android Studio, Max/MSP, Eclipse, NetBeans, Visual Studio (Code), Meshlab, Pure Data, Graph Tea, Cygwin, Garage Band

Operating Systems: MacOS, Linux (Ubuntu), UNIX, Windows 10

Work Experience

- **Mobeewave** — Montreal, QC
  Embedded Systems Payment Application Developer — *Oct. 2018 - Ongoing*

  - Work includes development of PCI compliant payment kernels in embedded and software environments, development of payment kernel test tools, testing of payment kernels, and development of payment kernel related software.
  - Led a team to develop a KaiOS WebApp used in L2 certification of JIO phones as a payment terminal. Worked closely with engineers from across the globe, as well as leading a team at the Mobeewave Office.

- Developed a python-based GUI used by external clients to submit terminal configuration data. The GUI takes user data, validates it, and exports the data in TLV format that is expected by the MW payment kernel.
- Led and arrange music for the Mobeewave Band

McGill University Tutoring Services — Montreal, QC
Personal Math, Computer Science, Biology and Music tutor — *Sept. 2017 - Jan. 2019*

- Worked one on one with students to help them grasp core concepts taught in various programs. Disciplines included Mathematics, Computer Science, Biology, Ecology and Music. Responsibilities included designing practice exams and problem sets that addressed the specific weaknesses of each student.

Appalachian Mountain Club August Camp — Seattle, WA
Crew Member — *July 2015 - Aug. 2018*

- Provided food and lodging in the back-country. Responsibilities included making food orders, designing menus, building camp facilities, interacting with local suppliers, managing grey water, cooking meals, and interacting with customers while living in a remote setting.

Schulich School of Music — Montreal, QC
Student Ambassador — *Sept. 2017 - May 2018*

- Represented the school to prospective students by giving tours, coordinated recruitment events, personally advised students interested in pursuing non-traditional educational paths.

Northern Star Council Base Camp — St. Paul, MN
Outdoor Leadership and Team Building Guide — *May 2014 - Aug. 2017*

- Taught team building, archery, rock climbing and led outdoor development programs to children from the ages of 5 to 18 as well as adults with disabilities. Responsibilities included designing curricula tailored to each participants' needs, as well as assuming responsibility for large groups of children for extended periods of time.

Projects

Inferring Network Topology from Chaotic Time Series — Montreal, QC
Supervised by Frederic Guichard (McGill University) — *May 2018 - Aug. 2018*

- Created multiple data sets used for training machine learning algorithms.
- Designed and tested machine learning architectures for the tasks of regression and classification of the food web topology that generated a given population time series.
- In the process of publication.

Reproducability Study of ICLR 2018 Submissions — Montreal, QC
Supervised by Joelle Pineau (McGill University) — *November 2017 - Dec. 2017*

- Attempted to reproduce the experiment detailed in the paper "Do Convolutional Neural Networks act as Compositional Nearest Neighbors?" as part of a reproducability study for ICLR 2018 headed by Joelle Pineau.

- **Image Analysis on the Modified MNIST Dataset**   Montreal, QC
  Independent   *Oct. 2017*

  - Compared the effectiveness of three different Machine Learning models on detecting which digits are present in a given image. This dataset was similar to the MNIST Dataset, but featured more noise and multiple digits per image.

- **Creation of the UWM8 Dataset**   Montreal, QC
  Supervised by Joelle Pineau (McGill University)   *September 2017.*

  - Created a dataset of human to human conversations in French that contain sarcastic remarks. All data was pulled from Reddit, cleaned and stored in a user friedly fashion for future use in Machine Learning.

- **Das Bohnenspiel Artificial Intelligence Algorithm**   Montreal, QC
  Supervised by Jackie Cheung (McGill University)   *Sep. 2016 - Dec. 2017*

  - Implementation of the Principal Variation Search algorithm as applied to the Mankala-like game Das Bohnenspiel. The algorithm was tested against random players, bots, and humans.

- **Voice to R2-D2 Sound Synthesizer**   Montreal, QC
  Supervised by Gary Scavone (McGill University)   *Jan. 2016 - April. 2016*

  - Developed an application utilizing programs implemented in Matlab and Max/MSP which would take input .wav files and play a random string of R2-D2 sounds that were mapped to pitches in the input file.

Interests

Academic: Chaos theory, mathematics in music and biology, music theory, fractal geometries, ecology, bioinformatics, computer graphics, dynamical systems, quantum theory and computation, discrete mathematics, machine learning, artificial intelligence

Sports: Climbing (rock & ice), search and rescue, swimming, snowboarding

Musical: Classical & jazz trumpet, singing, piano

Other: Cooking & baking, camping, hiking, billiards, animal care, child care