Gabe Nespoli, PhD

Data Scientist

---

gabenespoli@gmail.com

www.gabenespoli.com

linkedin.com/in/gabenespoli

github.com/gabenespoli

Skills: signal processing, research design, data collection, wrangling, and modelling, machine learning

Tools: MATLAB, Python, R, Shell, Linux, git, vim, EEG (BioSemi, EEGLAB), Psychophysiology (Biopac)

Work Experience

Data Scientist

2018-Present | SMART Lab, Department of Psychology, Ryerson University

- Creates tools for analysis and visualization of biological time-series data, empowering colleagues to understand their data
- PHZLAB (github)
- Provides tools for importing, segmenting, processing, and visualization of multiple trials of time-series data
- Automates the extraction of features, allowing for quick visualization of different processing pipelines
- Neural Entrainment Toolbox (github)
- Wrangles EEG data to assess the entrainment of neurons in different parts of the brain
- Automates the entire process, making it simple to investigate different combinations of entrainment frequencies, brain regions, and other parameters

Graduate Student

2012-2018 | SMART Lab, Department of Psychology, Ryerson University

- Designed and programmed experiments measuring neural entrainment to successfully assess the brain's response to musical input

- Used signal processing algorithms (e.g., filtering, FFT, independent component analysis (ICA)) to extract meaningful values from multi-channel biological data
- A/B testing to compare different analysis pipelines to reveal the optimal parameters for accurate analysis
- Gained a reputation in the department for EEG expertise, and was often consulted on the design and analysis of experiments
- Communicated technical ideas to non-technical audiences with ease
- Hosted biannual workshops on data analysis, signal processing and programming in MATLAB for 5-10 attendees, engaging others to discover the power of programming
- Developed scripts for automating the extraction of spectral features from EEG data, using both Fourier and wavelet methods

Research Operations Coordinator

2010-2012 | Department of Psychology, Ryerson University

- Collaborated with researchers on experimental design and analysis
- Offered training and support on various hardware and software research tools
- Managed department resources and liased with manufacturers, ensuring smooth operation of the department
- Managed the purchasing of research tools, including EEG, VR, and eye tracking
- Selected as the teaching assistant for a graduate-level course on computational methods, empowering students with programming and analysis skills

Lab Manager

2007-2010 | SMART Lab, Department of Psychology, Ryerson University

- Ran participants in neural, physiological, and behavioural experiments, ensuring proper collection of data for the lab's experiments
- Heavily involved in the purchasing of equipment, setup, maintenance, and running of the lab's recording studio
- Recorded and edited audio/video stimuli (Pro Tools, Premiere Pro)
- Developed software analysis tools and instructed others on their use, effectively automating lab members' analyses
- Gained a reputation as the go-to person for tech and analysis

---

Education

PhD in Psychology

2014-2018 | Ryerson University

Dissertation: The Neuroscience of Groove: Neural Mechanisms Marrying Music and Movement

Machine Learning Certificate

2017 | Stanford University via coursera.org

MA in Psychology

2012-2014 | Ryerson University

Thesis: Musicianship and Neural Synchronization at Multiple Timescales

BSc in Psychology

2003-2007 | McGill University

Thesis: Beauty in the Body of the Beholder: The Physiological Correlates of Musical Emotion

---

Interests

- Sports: golf, hockey (goalie), and cycling
- Music: jazz organ, folk and bluegrass guitar
- Food: gardening, cooking, and eating