

Michael Goodale — CV

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Education

École Normale Supérieure

Paris

Masters in Cognitive Science

2020–2022

Specialisation in Linguistics with a GPA of 17.9/20

Masters Thesis: *Manifolds as Conceptual Representations in Natural Language Semantics* supervised by Prof. Salvador Mascarenhas.

McGill University

Montreal

B.A. & Sc. Honours

2015–2019

Major in Cognitive Science with focus in Linguistics and Minor in Computer Science

Graduated with First Class Honours and a GPA of 3.90/4.00

Honours Thesis: *Probabilistically Reconstructing the Allophonic Rules of English Stops* supervised by Prof. Morgan Sonderegger

Experience

École Normale Supérieure

Paris

Research Intern

Summer 2021

Analysed adjective representations in large language models leading to a poster at BlackboxNLP at EMNLP 2021 and an oral presentation at the Bridges and Gaps workshop at ESSLLI 2022 with Prof. Salvador Mascarenhas.

École Normale Supérieure

Paris

Research Intern

Fall 2020

Exploratory analysis of the learnt phonological representations of contrastive predictive coding and other unsupervised models of sound as part of the Cognitive Machine Learning team

Nuance Communications

Montréal

Research Developer Intern

Fall 2019

Natural Language Processing tasks involving BERT, Neural Machine Translation, and semantic similarity on large quantities of scraped text. Created a pipeline for training new languages on BERT in a specific semantic domain by creating new datasets automatically which saved significant investment in purchasing new datasets.

McGill University

Montréal

Research Assistant

Summer 2018, 2019

Research with Prof. Morgan Sonderegger in phonetics, phonology and dialectology with web programming in Python using Django and front-end development with React as part of the SPADE ISCAN project.

Cambridge Brain Sciences

London, Ontario

Research Assistant

Summer 2017

Exploratory data analysis of neurocognitive tests with Python, web programming in Ruby

Western University

London, Ontario

Research Assistant

Summer 2016, 2017

Research with Prof. Marc Joanisse, running psycholinguistic studies, preparing stimuli with E-Prime, and analysis of fMRI data

Software skills

Significant experience: Python, PyTorch, NumPy, Pandas, Linux/Unix, Bash, L^AT_EX

Experience: Javascript, C, Tensorflow, Docker

Side projects

Prefrontal Cortex as Meta-Reinforcement Learning re-implementation: Re-implementation of *Prefrontal cortex as a meta-reinforcement learning system* (Wang et al, 2019) in PyTorch with new 2D maze environments.

Wall Street Bets analyser: Financial backtesting algorithm using sentiment analysis of comments from the /r/WallStreetBets subreddit. Bull-bearish indicator built with BERT and the HuggingFace Transformers library, Named Entity Recognition to find references to specific stocks built with SpaCy and backtesting with the Backtrader framework.

Sociophonetic Surveys: Survey website designed specifically for sociophonetic interviews using Flask.

Volunteering

Tutor for Talens: Weekend classes at the undergraduate level taught in French to high school students from disadvantaged schools. Curriculum and course material is prepared by me to the individual class's particular strengths and interests.

Languages

English: Native

French: Fluent *C2 (TCF Compéhension Orale/Compréhension Écrite 606)*

Honours

Bourse Frontenac: 2020 *Master's research award from the Fonds de recherche du Québec – Nature et Technologies*

Dean's Honours List: 2019 *Awarded to top 10% of the degree upon graduation*

McGill Department of Linguistics Award for Excellence in Research: 2019

Arts Undergraduate Research Internship Award: 2018 *Research award with Morgan Sonderegger at McGill University*

Top Three at McHacks: 2017 *Out of 97 teams. McGill Hackathon. My team's project was Be Right Back, a chat-bot using Seq2Seq which was personalised based on the writing style of one's Facebook friends*

NSERC USRA: 2017 *Research award with Marc Joanisse at Western University*

Faculty of Science In-Course Scholarship: 2016

JW McConnell Scholarship: 2015-2019 *Renewable scholarship covering all tuition and related expenses for four years*

The Governor General's Bronze Academic Medal: 2015 *Highest graduating average from my high school*

Publications

[1] Michael Goodale. Do contextual word embeddings represent richly subsective adjectives more diversely than intersective adjectives? Oral Presentation at Bridges and Gaps Workshop - ESSLLI 2022.

[2] Michael Goodale and Salvador Mascarenhas. Do contextual language embeddings distinguish between intersective and strictly subsective adjectives? In *Blackbox NLP Workshop - EMNLP 2021*, 2021.

[3] Michael McAuliffe, Arlie Coles, Michael Goodale, Sarah Mihuc, Michael Wagner, Jane Stuart-Smith, and Morgan Sonderegger. ISCAN: a system for integrated phonetic analyses across speech corpora. *Proceedings of the 19th International Congress of Phonetic Sciences*, 2019.