# PHILIPPE MARCOTTE

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## EXPERIENCE

### Applied Research Intern
**Druide**

📅 August – November 2019   📍 Montreal, Canada

- Researching the best ways to tackle grammatical error correction problems with state-of-the-art NLP models in the context of integrating the solutions to the main software, Antidote.
- Establishing a pipeline from raw data to training and testing models quickly.

### Analyst Programmer Intern
**Giro**

📅 May - August 2017   📍 Montreal, Canada

- Developing web tools in Javascript to help developers manage tickets and issues on Team Foundation Server (TFS).
- Correcting bugs on back-end applications in C# for the integration of TFS to Visual Studio.

### C++ Developer Intern
**Audiokinetic**

📅 May - August 2016   📍 Montreal, Canada

- Adding features to the sound engine editor's (Wwise) UI.
- Adding features to the C++ sound engine.

### Junior Software developer
**XYJ**

📅 July 2015 - January 2016   📍 Montreal, Canada

- Development of web scrapers for automatic data collection on clients' competitors.

## TECHNICAL SKILLS

- Python, C++, C#, Java, HTML/CSS, JavaScript
- Pytorch, Deep Learning, NLP, Computer Vision
- Git, Docker
- Test Driven Development, Continuous Integration, Agile
- Design patterns
- MySQL - MongoDB

## LANGUAGES

- Français: Native language
- English: Spoken, written and read

## HOBBIES

- Bouldering
- Video games
- Cooking and listening to music.
- Self-hosting web services for the sake of it.

## EDUCATION

### Machine Learning
**Professionnal Master**

📅 May 2020   📍 Mila/Universite de Montreal

### Software Engineering
**Bachelor's Degree**

📅 2018   📍 Polytechnique de Montreal

## ACHIEVEMENT

### AI Driving Olympics - Neurips 2019

- Winner of the Lane Following with other vehicles category
- Second place in the Lane Following category

## PROJECTS

### Residual Policy Learning for self-driving robot ⬈

- For a robotic class named Duckietown, we had robots using a camera to follow a road in a model city. The goal was to improve the existing system. We used a Pure Pursuit controller has a basis but refined it using Residual Policy Learning. Instead of modelizing the whole system using Reinforcement Learning, we modeled only a correction that would be applied on top of the controller as to make it better. To achieve this, we adapted DDPG to our case and trained using ROS and Pytorch.

### HDR image generation with deep learning ⬈

- The project was a completely reimplementation using Python and Pytorch of the experiment described in this paper. The experiment consisted in fusing three ordinary images (Low Dynamic Range) of different exposition time from the same scene in one HDR image. For this reason, an optic flow algorithm was used to align the lowest and highest exposition on the normal exposition image. Then, a convolutional network was used to model the fusing process.

### Recognizing tree species from patches of forests

- For a project class done during my master, in team, we worked on a project proposed by Horoma. It consisted in identifying tree species from 21 different ones based on image patches from a forest. We had only access to a very small labeled dataset and a big unlabeled one. Using autoencoders, we leverage the unlabeled data to learn differentiating features and create clusters representing each species. Then, using K-mean and the labeled data, we identified each cluster. Our model was the best from all the teams working on the project.

Please visit my website for more. ⬈