

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 problem 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.

DevOps Intern

Giro

May - August 2017 Montreal, Canada

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

Software Engineer 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
- Git
- Test Driven Development, Continuous Integration, Agile
- SQL, NoSQL

LANGUAGES

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

HOBBIES

- Bouldering
- Video games
- 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

Sciences, Mathematics and Computer science

Diploma of Collegial Studies

2014 College Bois-de-Boulogne

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 project had for goal to improve the existing system. We used a PID controller has a basis but refined it using [Residual Policy Learning](#). Instead of modeling the whole system using Reinforcement Learning, we modeled only a correction that would be applied on top of the PID controller as to make it better. To achieve this, we adapted [DDPG](#) and used a variety of pretraining. Finally, we also used blob detection techniques to detect obstacles and trace a path for the robot to go around them.

HDR image generation with deep learning

- The project consisted in reproducing the experiment describe in this [paper](#) from Kalantari, Nima Khademi and Ramamoorthi, Ravi. 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.

Home Server

- In my free time, I made my own server running Ubuntu 18.04 headless on an Odroid HC2. All the services offered are compartmentalized in docker containers. Outside network traffic is manage through a reverse-proxy (Nginx) and secure https connection is done with the help of Lets encrypt. Automated incremental backups to external hard drive are done using borg-backup and redundant backups of the password manager database are sent to Google Drive.

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