Guillaume **Lagrange**

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Education

Professional M.Sc. in Machine Learning 09/2019 - present

MILA – QUEBEC AI INSTITUTE, MONTRÉAL

Bachelors in Automation Engineering 09/2015 - 05/2019

ÉCOLE DE TECHNOLOGIE SUPÉRIEURE, MONTRÉAL

College Diploma in Computerized Systems Technology 09/2012 - 06/2015

COLLÈGE GÉRALD-GODIN, SAINTE-GENEVIÈVE

- Award of Excellence from the Department of Studies for my collegiate end of studies project, a remote monitoring and data logging system.

Skills

Tools	MS Visual Studio, Eclipse, Git, PyTorch/Libtorch, Tensorflow, LaTeX
Programming	Python, C/C++, MATLAB, SQL, HTML, CSS, PHP, AWK
Database Management	MySQL, SQLite
Operating Systems	Linux, Windows
Electronics	Digital Electronics, Microcontrollers, Programmable Logic Controllers, Printed Circuit Design, Prototyping, Communication Protocols

Experience

Applied Research Intern [Mitacs] – Artificial Intelligence 05/2020 - present

TELEDYNE DALSA, SAINT-LAURENT

- Conduct a thorough literature review of semi-supervised object detection (SSOD) and related works
- Implement and reproduce the results of two state-of-the-art methods in SSOD
- Experiment with a different dataset distribution and (attempt to) improve one of the chosen methods

Software Development – Artificial Intelligence 01/2019 - 05/2020

TELEDYNE DALSA, SAINT-LAURENT

- Participate in the development of a new software platform to deploy deep learning models in production by facilitating the common deep learning workflows for computer vision applications
- Integrate deep neural network architectures to existing back-end for different computer vision tasks
- Collaborate in back-end development to serve training, testing and inference for a set of supported deep neural network architectures
- Explore and benchmark deep learning model inference on embedded devices

Software Engineering Intern – Artificial Intelligence
09/2018 - 01/2019

TELEDYNE DALSA, SAINT-LAURENT

- Develop a real-time object detection system for a trade show demo application
- Integrate an object detection deep neural network architecture to existing back-end for model serving
- Develop an automated tool to allow quick image dataset construction from the web

Software Engineering Intern
05/2017 - 09/2017

HEWLETT-PACKARD ENTERPRISE, SAINT-LAURENT

- Refactor the tool for generating files with unique numbering of a product's high-level system logs
- Optimize the build system and eliminate circular dependencies between modules
- Integrate a customized automation tool (bot) into the team's collaboration center

Technician in Instrumentation and Control
06/2011 - 09/2016

AESL INSTRUMENTATION INC., PIERREFONDS

- Verify, calibrate, diagnose and repair electronic measuring devices
- Integrate programmable modules and configure data logging systems
- Wire, install and service control panels and continuous analyzers

Projects

Robotic Vision Application: Deep Learning Based Pick and Place

- Train, fine-tune and evaluate a CNN-based object detection model for the target application
- Program real-time capture from a high-performance industrial camera using the GigE-V interface
- Infer detections from captured image data and convert positions to the workspace coordinate system
- Control a robotic arm in a reactive manner based on the detected objects' positions
- Develop an application to interface the different tasks concurrently, including a GUI to interact with the devices and display the camera's video feed with the detected objects

Deep Neural Networks Model Compression and Acceleration

- Conduct a literature review on deep neural networks model compression and acceleration methods
- Write a survey summarizing the most common methods in the research community
- Provide in-depth analysis on a subset of the chosen methods and a PyTorch implementation

Remote Monitoring and Data Logging System

- Design and make the electronic circuit and circuit board
- Program data logging tasks for a microcontroller in C
- Configure an embedded computer as a server on the network to query the database records
- Develop a web page to display current readings of the different connected devices, provide recorded data history as well as device configuration

Interests

- Machine Learning
- Computer Vision
- Robotics
- Graphic Design