

Guillaume Lagrange

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English · French

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Education

Professional M.Sc. in Machine Learning

2019 - present

MILA – QUEBEC AI INSTITUTE, MONTRÉAL

Bachelors in Automation Engineering

2019

ÉCOLE DE TECHNOLOGIE SUPÉRIEURE, MONTRÉAL

College Diploma in Computerized Systems Technology

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, Photoshop, \LaTeX
Programming	Python, C, C++, MATLAB, SQL, HTML, CSS, PHP, AWK
Database Management	MySQL, SQLite
Cloud-Based Technologies	AWS, Google Cloud Platform
Operating Systems	Linux, Windows
Electronics	Digital Electronics, Microcontrollers, Programmable Logic Controllers, Printed Circuit Design, Prototyping, Communication Protocols

Experience

Software Development Engineer – Artificial Intelligence

2018 - present

TELEDYNE DALSA, SAINT-LAURENT

- Participate in the development of a new software product to deploy deep learning models in production by facilitating the common deep learning workflows for computer vision applications
- Develop a real-world robotic vision application for sorting small objects to showcase deep learning capabilities in object detection
- Integrate different deep neural network architectures to existing back-end for object detection and classification tasks
- Collaborate in back-end development to serve training, testing and inference for a set of supported deep neural network architectures
- Explore deep learning inference on embedded devices and evaluate the performance
- Develop a set of tools for the new software product's DevOps pipeline

Software Development Engineer

Summer 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
- Author detailed documentation on the new software tools used by the team

Technician in Instrumentation and Control

2011-2016

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: Demonstrating the Capacities of Recent Deep Learning Advances In Object Detection

- Construct and label a dataset specific to the application (sorting small hardware objects)
- Train, fine-tune and evaluate a convolutional neural network (CNN) model for the target application
- Capture images in real-time 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, which also incorporates 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 of research papers on the different 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
- Implement the chosen methods using the PyTorch library and compare the methods based on different performance measures

Remote Monitoring and Data Logging System

- Plan and develop a project / prototype
- Design the electronic circuit and the circuit board
- Program tasks to run on 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 download and device configuration

Interests



Machine Learning



Computer Vision



Robotics



Graphic Design