Étienne Pepin

Languages:
English and French

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Education

Master's Degree in Automated Manufacturing Engineering 2018 - 2020
École de technologie supérieure (ÉTS) *Montréal, Qc*

Bachelor of Automated Manufacturing Engineering 2016 - 2018
École de technologie supérieure (ÉTS) *Montréal, Qc*

Relevant Experience

Researcher (Scholarship) 2019-2020
Simulation and digital health, National Research Council Canada *Boucherville, Qc*

- Develop a segmentation procedure for CT images of the torso, based on a Dense-Vnet

Laboratory Instructor 2020
École de Technologie Supérieure *Montréal, Qc*

- Prepare, improve, deliver and grade laboratories for a master's level computer vision class

Software Developer (Internship) 2018
Teledyne Dalsa *Montréal, Qc*

- Code a C# library to control precisely a cart used in laser 3D scanning
- Create and code a communication protocol between a C# software and an Arduino enabling full control over the Arduino from a computer

Integration Validation Verification Qualification Expert (Internship) 2016
Thales Canada Inc., Avionics *Montréal, Qc*

- Contribute to the DO-178C certification process (Sofware Considerations in Airborne Systems and Equipment Certification)

Research

Keypoint Masking for Analyzing Segmented Medical Image Data 2020
Master's Thesis

Analysis of keypoint extraction on masked images resulting in an extraction procedure limiting masking related noise. The procedure is supported by a theorical model valid for images of any dimensions. The model includes a proof that intensity displacement due to Gaussian filtering follows the Chi distribution.

Large-scale Unbiased Neuroimage Indexing 2020
Refereed publications in conference proceedings, based on the thesis

Pepin, Étienne, Jean-Baptiste Carluer, Laurent Chauvin, Matthew Toews, and Rola Harmouche. "Large-Scale Unbiased Neuroimage Indexing via 3D GPU-SIFT Filtering and Keypoint Masking." In Machine Learning in Clinical Neuroimaging and Radiogenomics in Neuro-oncology, pp. 108-118. Springer, Cham, 2020.

Skills

Computer Vision
Master's level courses: computer vision, medical imaging, deep learning
Research: 3D SIFT-Rank keypoints, dense Vnet and multidimensional Gaussian filters

Software
Languages: Python, C#, MATLAB, C++, Arduino
Libraries: OpenCV, SciPy, pandas, TensorFlow, NiftyNet, Keras

Mathematics
probability theory, linear algebra