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| Curriculum vitae | | Gabriel Descôteaux (514) 404-5254  Montreal, Quebec, Canada  gabriel.descoteaux@polymtl.ca  Portfolio : https://gadese.github.io/ | | | |
| **Overview** | | | **Skills** | | |
| * Experience: **computer vision** (CV), **robotics**, deep learning, natural language processing * Fluent in French and English * Demonstrated excellent organizational, communication, teamwork and project management skills * Working in a **Linux** environment **cloud-based** GPUs/storage * Proficiency in **Python**, C++, as well as experience with JAVA & MATLAB * Eager to learn and face new challenges | | | **Deep learning / Machine learning**   * **Tensorflow**, **Keras**, scikit-learn * **Convolutional neural networks** (CNN), transformer models (BERT), classical machine learning (K-means, SVM, etc.) * OpenCV, Pandas, Numpy | **Programming**   * Python, C++, Java, Matlab * Version control (**Git**) * Cloud-based GPU systems, remote debugging, Linux environment | |
| **Others**   * MS Office, Cooking mexican cuisine, LaTeX |  | |
| **Education** | | | | | |
| **M.Sc in Mechanical Engineering – Robotics and Mechatronics systems**  *Research Group in Design, Machine Learning and Optimization for Mechatronic Systems, Polytechnique Montréal*  *Thesis: Autonomous feeding-assistance system for people with upper body disabilities (*[***see demo here***](file:///O:\Documents\GitHubRepos\gadese.github.io\projet-maitrise\maitrise.html)*)*   * Implement detection and localization in 3D of food in an image (Python & Tensorflow) * Code pathplanning of a 6DoF robot arm (C++ & Python) | | | | | **2018-2020**  **GPA: 4.00/4.00** |
| **B.Sc in Electrical Engineering**  *Polytechnique Montréal*  *Graduated with a focus on* ***AI, Computer Vision****, Robotics and Controls* | | | | | **2014-2018**  **GPA: 4.00/4.00** |
| **Publications** | | | | | |
| * Descôteaux G., Coulombe, C., Chouinard U., Achiche S., “Towards an Efficient Robust Design Methodology for Complex Mechatronic Systems”, IDETC-CIE, 2021. [Submitted] * Coulombe, C., **Descôteaux, G.**, Barron, O., Gamache, J.F., Saussie, D., Achiche, S.,“Task Taxonomy for Autonomous Unmanned Aerial Manipulator: A Review”, IDETC-CIE, 2020. | | | | | |
| **Engineering Experience** | | | | | |
| **Research Scientist – Natural Language Processing**  **2020-Present**  *Nuance Communications* | * Optimize natural language processing model (BERT) to meet client requirements using **Tensorflow** * Test and compare new model architectures to baselines in order to evaluate improvements * Develop techniques to **improve NLP model performance on very small training sets**: data augmentation, few-shot learning, post-training hand-designed techniques * Contribute to adding new features to company software and maintaining codebase for company-wide tools using JAVA * Work with cloud-based GPU platforms using remote debugging and Git | | | | |
| **Research Development Intern – Computer Vision**  **2020**  *Nuance Communications* | * Work on **a proof-of-concept of a CV system** to help doctors with note-taking during consultations * Implement state-of-the-art computer vision algorithms for pose estimation and action detection in Python and Tensorflow/Keras following a literature review | | | | |
| **Software Development Intern**  **2018**  *Analogic Canada* | * Develop defect detection algorithms for X-ray images in order to automate the X-ray detector vetting process (Python) * Converted existing C++ algorithms in Python | | | | |
| **Research Intern in Robotics**  **2016-2017**  *Research Group in Design, Machine Learning and Optimization for Mechatronic Systems, Polytechnique Montreal* | * Develop a control method for a 6DoF robot arm **using facial recognition** (C++)   [[demo link here](https://gadese.github.io/robot-facial-recog/robot-facial-recog.html)]   * Test optimisation algorithms for the physical parameters of a drone in order to reduce energy consumption (Genetic Algorithm, Particle Swarm, Latin Hypercube Sampling, etc.) * Contribute to the redaction of a publication on robust design methodology | | | | |
| **Research Intern in Biomedical Imaging**  **2015**  *Laboratory of Optical Diagnoses and Imaging, Polyechnique Montreal* | * Design a variable length reference arm for Optical Coherence Tomography (OCT) in order to reduce noise in a medical image without using software correction | | | | |
| **Personal Projects / Student Groups** | | | | | |
| **Personal Computer vision projects**   * Using a database of speed limit signs, learn to detect them on new images [In progress, [github link here](https://github.com/gadese/speedsigns)] * Various simple Kaggle competitions: Regression on House Prices, Digit recognizer, CIFAR-10 classifier * Implement various algorithms for computer vision (**ResNet, YOLO, Faster RCNN**) in Keras | | | | | |
| **Other projects**   * Rubik’s cube self-solving robot * Glove to measure forces within finger tendons for rock-climbing training (Final year project for my B.Sc.) * 2-wheels self-balancing robot [[link here](https://gadese.github.io/segway/segway.html)] | | | | | |
| **Extracurricular courses**   * Coursera Self-Driving Cars specialization * Coursera Deep Learning Specialization * Udacity’s Artificial Intelligence for Robotics course * Coursera’s Natural Language Processing Specialization | | | | | |
| **PolyProject (Engineering student club)**  *2014-2018*   * Technical group aiming to complete innovative projects. Projects completed: Fiber optics sensory glove, human-like robot hand * Treasurer (2016-2017) and Public Relations Manager (2015-2016) | | | | | |
| **Honors & Awards** | | | | | |
| 2019  2018  2015, 2016, 2017  2015-2019 | *FRQNT research grant for M.Sc. students*  *NSERC research grant for M.Sc. students*  *NSERC Summer research grant for undergraduate research*  *Others by Polytechnique Montreal (for community involvement & academic performance): JA DeSève award, CMC Électronique award, Vedel award, Hatch Lt. award* | | | | |