Jean-François Tremblay

Aspiring AI and robotics researcher
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EDUCATION

McGill University *September 2019 - Present*
Ph.D., computer science
Supervised by Professor David Paul Meger

Laval University *September 2017 - August 2019*
Research M.Sc., computer science GPA: 4.11/4.33
Thesis: Forest inventory with lidar-equipped robot for difficult environments
Supervised by Professor Philippe Giguère and Professor Martin Béland

Laval University *September 2014 - May 2017*
B.Sc., mathematics and computer science GPA: 3.20/4.33

JOURNAL PUBLICATION

Jean-François Tremblay and Martin Béland. "Towards operational marker-free registration of terrestrial lidar data in forests". In: *ISPRS Journal of Photogrammetry and Remote Sensing* 146 (2018), pp. 430–435. ISSN: 0924-2716. DOI: https://doi.org/10.1016/j.isprsjprs.2018.10.011. URL: http://www.sciencedirect.com/science/article/pii/S0924271618302892

REFEREED CONFERENCE PUBLICATION

Accepted, presented but unpublished: Jean-François Tremblay, Martin Béland, François Pomerleau, Richard Gagnon, and Philippe Giguère. "Automatic 3D Mapping for Tree Diameter Measurements in Inventory Operations". In: *Proceedings of the 12th Conference on Field and Service Robotics (FSR)*. Springer. Tokyo, Japan, 2019

ACADEMIC EXPERIENCE

Laval University *September 2017 - August 2019*
Graduate student - Northern robotics laboratory

- Led and organized a project involving a forest technician and engineers
- Designed a field robotics experiment in forests
- Studied GPS-denied 3D mapping algorithms for mobile robots
- Studied tree diameter estimation methods from 3D points clouds
- A video of the 3D mapping results is available here
- Wrote a paper presented at a robotics conference

Laval University *May 2019 - August 2019*
Graduate researcher - Digital forest laboratory

- Designed a wood-leaf lidar segmentation algorithm using machine learning
- Oversaw a team doing data labeling
- Helped other students in the lab researching deep learning for forest conservation efforts

Laval University *May 2016 - April 2017*
Undergraduate researcher - Digital forest laboratory

- Studied an algorithm for forest biomass prediction from 3D point clouds
- Designed an algorithm for point cloud registration of lidar data in forests
- Conducted an experimental validation of the registration algorithm
- Wrote a journal paper as first author about this algorithm, which was published in 2018

INDUSTRIAL EXPERIENCE

CRiQ (Quebec's center for industrial research) *May 2018 - December 2018*
Mitacs intern, technology transfer

InnovMetric Software Inc. *May 2017 - August 2017*
C++ software developer, 3D scanning

CNESST (Quebec government agency) *May 2015 - April 2016*
Software development intern, NoSQL databases

TALKS

Invited

- Jean-François Tremblay. "Automatic 3D Mapping for Tree Diameter Measurements in Inventory Operations". Presented at *Petit déjeuner FORAC*, Laval University, Quebec City. 2019
- Jean-François Tremblay. "Towards autonomous forest inventory with mobile robots". Presented at Quebec's center for industrial research, Quebec City. 2018

Others

- *Presented by Martin Béland.* Martin Béland and Jean-François Tremblay. "On separating wood from leaves, accounting for leaf angle distribution, and occlusion effects in terrestrial lidar scans of dense forests". Silvilaser. Iguazu Falls, Brazil, 2019
- Jean-François Tremblay. "An algorithm for marker-free registration of lidar point clouds in forests". 6ième édition de l'atelier T-Lidar pour la communauté francophone: Utilisation de nuage de points à haute densité pour l'écologie forestière. Sherbrooke, Canada, 2016
- I also gave talks about five different machine learning papers as part of coursework and a reading group.

POSTERS

Jean-François Tremblay, Martin Béland "Towards Operational Marker-Free Registration of Terrestrial Lidar Data in Forests", presented at:

- Colloque REPARTI, Québec, Canada 2018
- NCFRN Annual General Meeting, Montréal, Canada, 2018
- *Presented by Martin Béland.* Royal Society Theo Murphy International Meeting: "The terrestrial laser scanning revolution in forest ecology", Chicheley, United Kingdom, 2017

SCHOLARSHIPS, AWARDS

Hydro-Québec Doctoral Fellowship, 15 000$ *October 2019*
Mitacs Accelerate, 30 000$ *May 2018 - December 2018*
McGill Grad Excellence Award, 4700$ *September 2019 - August 2020*

RELEVANT COURSES

Deep learning	Computer vision	Parallel and distributed computing
Mobile robotics	Optimization	Measure theory
Advanced probability	Probabilistic graphical models	

EXTRA-CURRICULAR, VOLUNTEERING

Vonlunteer for the *Rendez-vous IA Québec 2019*

Member of the graduate program committee for Laval University's computer science department

Secretary-treasurer for the mathematics and statistics graduation committee of 2016-2017

Also participated in various fund raising activities for this graduation committee

Orange belt in Judo

Guitar player

TECHNICAL STRENGTHS

Computer Languages	C++, Python, MATLAB, Java
Software & Tools	Robot Operating System, NumPy, Scikit-Learn, Ceres, Eigen, PyTorch, Point Cloud Library, CMake, Linux