PHILIPPE GIGUÈRE, PH.D., ENG.

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Member of: REPARTI, CRDM, DAMAS, Norlab

EDUCATION

2004-2010	Ph.D. (Computer Science) McGill University, QC, Canada
2000-2003	Master (Computer Science) Northeastern University, MA, USA
1992-1996	B.Sc. (Engineering Physics) Université Laval, QC, Canada

PROFESSIONAL EXPERIENCE

2015- …	Université Laval, Associate Professor
2010-2015	Université Laval, Assistant Professor
1999-2003	NMS Communications (Framingham, MA, USA), Software Engineer
1996-1998	CAE Electronics (Montreal, QC, Canada), Flight controls specialists

COURSES TAUGHT

- GLO-4030/7030: Deep Learning (once) https://ulaval-damas.github.io/glo4030/
- GLO-4001/7021: Introduction to Mobile Robotics (7 times)
- IFT/GLO-2001: Operating Systems (5 times)
- GLO-3013: Interdisciplinary project (3 times)

EDITORSHIP, INVITED POSITIONS AND CONFERENCE ORGANIZATION

- Associate Editor, Int'l Conf. on Intelligent Robots and Systems (IROS), 2017, 2018, 2019.
- Local chair, 13th International Symposium on Experimental Robotics (ISER), Quebec City (Canada), June 2012.
- Conference co-chair, 9th Conf. on Computer and Robot Vision, Toronto (Canada), May 2012.
- Conference co-chair, 8th Conf. on Computer and Robot Vision (CRV), St. John's, Newfoundland (Canada), May 2011.

PROGRAM COMMITTEES AND REVIEWING

I am a regular member of program committees and reviewer for all major robotics conference (RSS, ICRA, IROS) and some computer vision conferences (CRV, BMVC). I regularly review papers for journals such as IEEE Transactions on Robotics, Autonomous Robots, RAS, etc.

STUDENT SUPERVISION AND CO-SUPERVISION

Level	In progress	Completed
Summer interns	0	9
Masters	5	6
PhDs	4	1
PostDocs	0	1

RECENT PUBLICATIONS (SINCE 2012)

Refereed journals

[J5] M. Pierzchała, P. Giguère and R. Astrupa, Mapping forests using an unmanned ground vehicle with 3D LiDAR and graph-SLAM, *Computers and Electronics in Agriculture*, Vol 145, Feb. 2018, pp. 217-224.

[J4] D. St-Onge, P.-Y. Breches, I. Sharf, N. Reeves, I. Rekleitis, P. Abouzakhm, Y. Girdhar, A. Harmat, G. Dudek and P. Giguère, Control, localization and human interaction with an autonomous lighter-than-air performer, *Robotics and Autonomous Systems*, Vol 88, 2017, pp.165-186.

[J3] L. Trottier, P. Giguère and B. Chaib-draa, Feature Selection for Robust Automatic Speech Recognition: A Temporal Offset Approach, *Int'l Journal of Speech Technology*, 2015, pp. 1-10.

[J2] P. Dallaire, P. Giguère, B. Chaib-Draa and D. Émond, 2014, Autonomous Tactile Perception: A Combined Improved Sensing and Bayesian Nonparametric Approach, *Robotics and Autonomous Systems*, 62(4):422-435.

[J1] Y. Girdhar, P. Giguère and G. Dudek, 2014, Autonomous Adaptive Exploration using Realtime Online Spatiotemporal Topic Modeling, *Int'l Journal of Robotics Research (IJRR)*, 30(4):645-657.

Refereed Conferences and others

[C36] J.F. Tremblay, M. Béland, F. Pomerleau, R. Gagnon and P. Giguère, Automatic 3D Mapping for Tree Diameter Measurements in Inventory Operations, 2019, *Field Service Robotics*, submitted.

[C35] P. Babin, P. Dandurand, V. Kubelka, P. Giguère and F. Pomerleau, Large-scale 3D Mapping of Sub-arctic Forests, 2019, *Field Service Robotics*, submitted.

[C34] P. Dandurand, P. Babin, V. Kubelka, P. Giguère and F. Pomerleau, Predicting GNSS Satellite Visibility from Dense Point Clouds, 2019, *Field Service Robotics*, submitted.

[C33] A. Gariépy, J.C. Ruel, B. Chaib-draa and P. Giguère, GQ-STN: Optimizing One-Shot Grasp Detection based on Robustness Classifier, 2019, *IEEE/RSJ Int'l Conference on Intelligent Robots and Systems (IROS)*, submitted.

[C32] E. Palazzolo, J. Behley, P. Lottes, P. Giguère and C. Stachniss, ReFusion: 3D Reconstruction in Dynamic Environments for RGB-D Cameras Exploiting Residuals, 2019, *IEEE/RSJ Int'l Conference on Intelligent Robots and Systems (IROS)*, submitted.

[C31] X. Chen, A. Milioto, E. Palazzolo, P. Giguère, J. Behley and C. Stachniss, SuMa++: Efficient LiDAR-based Semantic SLAM, 2019, *IEEE/RSJ Int'l Conference on Intelligent Robots and Systems (IROS)*, submitted.

[C30] J.P. Mercier, C. Mitash, P. Giguère and A. Boularias, Learning object localization and 6d pose estimation from simulation and weakly labeled real images, 2019, *IEEE Conference on Intelligent Robots and Systems (ICRA)*, to appear.

[C29] P. Babin, P. Giguère and F. Pomerleau, Analysis of Robust Functions for Registration Algorithms, 2019, *IEEE Conference on Intelligent Robots and Systems (ICRA)*, to appear.

[C28] D. Landry, F. Pomerleau and P. Giguère, CELLO-3D: Estimating the Covariance of ICP in the Real World, 2019, *IEEE Conference on Intelligent Robots and Systems (ICRA)*, to appear.

[C27] M. Carpentier, P. Giguère and J. Gaudreault, Tree Species Identification from Bark Images Using Convolutional Neural Networks, 2018, *IEEE/RSJ Int'l Conference on Intelligent Robots and Systems (IROS)*.

[C26] L. Trottier, B. Chaib-Draa and P. Giguère, Convolutional Residual Network for Grasp Localization, 2017, *Conference on Computer and Robot Vision (CRV)*, pp. 168-175.

[C25] U. Côté Allard, D. St-Onge, P.Giguère, F. Laviolette and B. Gosselin, Towards the use of consumer-grade electromyographic armbands for interactive, artistic robotics performances, 2017, *IEEE Int'l Symposium on Robot and Human Interactive Communication (RO-MAN)*, pp. 1030-1036.

[C24] J.-P. Mercier, L. Trottier, P. Giguère and B Chaib-Draa, Deep Object Ranking for Template Matching, 2017, *Winter Conference on Applications of Computer Vision (WACV)*, pp. 734-742.

[C23] L. Trottier, P. Giguère and B. Chaib-draa, Parametric Exponential Linear Unit for Deep Convolutional Neural Networks, 2017, *Int'l Conf. on Machine Learning Application (ICMLA)*. pp. 207-214.

[C22] L. Trottier, P. Giguère and B. Chaib-draa, Sparse Dictionary Learning for Identifying Grasp Location, 2017, *IEEE Winter Conference on Applications of Computer Vision (WACV)*, pp. 871-879.

[C21] U. Côté-Allard, F. Nougarou, C. L. Fall, P. Giguère, C. Gosselin, F. Laviolette and B. Gosselin, A CNN for robotic arm guidance using sEMG based frequency-features, 2016, *IEEE/RSJ Int'l Conference on Intelligent Robots and Systems (IROS)*.

[C20] D. Landry and P. Giguère, Automating Node Pruning for LiDAR-based Topometric Maps in the context of Teach-and-Repeat, 2016, *Conference on Computer and Robot Vision (CRV)*.

[C19] L. Trottier, B. Chaib-Draa and P. Giguère, Incrementally Built Dictionary Learning for Sparse Representation, 2015, *International Conference on Neural Information Processing (ICONIP)*, pp. 117-126.

[C18] P. Dallaire, K. Tadeusz Walas, P. Giguère and B. Chaib-draa, Learning Terrain Types with the Pitman-Yor Process Mixtures of Gaussians for a Legged Robot, 2015, *IEEE/RSJ Int'l Conference on Intelligent Robots and Systems (IROS)*.

[C17] L. Trottier, P. Giguère and B. Chaib-draa, Temporal Feature Selection for Noisy Speech Recognition, 2015, *Canadian Conference on Artificial Intelligence*.

[C16] F.-M. de Rainville, J.-P. Mercier, C. Gagné, P. Giguère and D. Laurendeau, 2015, Multisensor Placement in 3D Environments via Visibility Estimation and Derivative-Free Optimization, 2015, *IEEE Int'l Conference on Robotics and Automation (ICRA)*.

[C15] D. Meger, J. C. Gamboa Higuera, A. Xu, P. Giguère and G. Dudek, 2015, Learning Legged Swimming Gaits from Experience, 2015, *IEEE Int'l Conference on Robotics and Automation (ICRA)*.

[C14] D. Meger, F. Shkurti, D. Cortés Poza, P. Giguère, and G. Dudek, 2014, 3D Trajectory Synthesis and Control for a Legged Swimming Robot, *IEEE/RSJ Int'l Conference on Intelligent Robots and Systems (IROS)*.

[C13] P. Dallaire, P. Giguère and B. Chaib-draa, 2014, Learning the Structure of Probabilistic Graphical Models with an Extended Cascading Indian Buffet Process, *28th AAAI Conference on Artificial Intelligence (AAAI-14)*, pp. 1774-1780.

[C12] L.Trottier, B. Chaib-draa, and P. Giguère, 2014, Effects of Frequency-Based Inter-frame Dependencies on Automatic Speech Recognition, *Canadian Conference on Artificial Intelligence*, pp. 357-362.

[C11] L. Rioux-Maldague and P. Giguère, 2014, Sign Language Fingerspelling Classification from Depth and Color Images using a Deep Belief Network, *Conference on Computer and Robot Vision (CRV)*, pp. 92-97.

[C10] O. Dugas, P. Giguère and I. Rekleitis, 2013, 6DoF Cooperative Localization for Mutually Observing Robots, *Int'l Symposium on Robotics Research (ISRR)*.

[C9] Z. Toony, D. Laurendeau, P. Giguère, and C. Gagné, 2013, 3D-NCuts: Adapting Normalized Cuts to 3D Triangulated Surface Segmentation, *Int'l Conference on Computer Graphics Theory and Applications (GRAPP)*, pp. 144-152.

[C8] Z. Toony, D. Laurendeau, P. Giguère and C. Gagné, 2013, 3D-PIC: Power Iteration Clustering for Segmenting Three-Dimensional Models, *3DTV-CON Conference (Vision Beyond Depth)*, pp. 1-4.

[C7] M. Latulippe, A. Drouin, P. Giguère and F. Laviolette, 2013, Accelerated Robust Point Cloud Registration in Natural Environments through Positive and Unlabeled Learning, *Int'l Joint Conference on Artificial Intelligence (IJCAI)*, pp. 2480-2487.

[C6] P. Giguère, Y. Girdhar, and G. Dudek, 2013, Wide-Speed Autopilot System for a Swimming Hexapod Robot, *Conference on Computer and Robot Vision (CRV),* pp. 9-15.

[C5] S. Manjanna, G. Dudek, and P. Giguère, 2013, Using Gait Change for Terrain Sensing by Robots, *Conference on Computer and Robot Vision (CRV),* pp. 16-22.

[C4] Y. Hold-Geoffroy, M-A. Gardner, M. Latulippe, C. Gagné, and P. Giguère, 2013, ros4mat: A Matlab Programming Interface for Remote Operations of ROS-based Robotic Devices in an Educational Context, *Conference on Computer and Robot Vision (CRV)*, pp. 242-248.

[C3] P. Giguere, I. Rekleitis, and M. Latulippe, 2012, I see you, you see me: Cooperative Localization through Bearing-Only Mutually Observing Robots, *IEEE/RSJ Int'l Conference on Intelligent Robots and Systems (IROS)*, pp. 863-869.

[C2] F. Shkurti, A. Xu, M. Meghjani, J.C. Gamboa Higuera, Y. Girdhar, P. Giguere, B.B. Dey, J. Li, A. Kalmbach, C. Prahacs, K. Turgeon, I. Rekleitis and G. Dudek, 2012, Multi-domain monitoring of marine environments using a heterogeneous robot team, *IEEE/RSJ Int'l Conference on Intelligent Robots and Systems (IROS)*, pp. 1747-1753.

[C1] Y. Girdhar, P. Giguere and G. Dudek, 2012, Autonomous Adaptive Underwater Exploration using Online Topic Modelling, *Int'l Symposium on Experimental Robotics (ISER)*.