Juan Camilo Gamboa Higuera

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Education

2013–present	**Ph.D. Candidate** in Computer Science, *McGill University*
	Thesis: Transfer of robot motor controllers from low fidelity domains
	Advisors: Gregory Dudek and David Meger
	Thesis committee: Joelle Pineau, Doina Precup and Frank Ferrie
2010–2012	**M.Sc.** Computer Science, *McGill University*
	Thesis: Fair subdivision of multi-robot tasks
	Advisor: Gregory Dudek
2005–2009	**B.Eng.** Systems and Computer Engineering, *Universidad de los Andes (Colombia)*
2003–2007	**B.Eng.** Electronics Engineering, *Universidad de los Andes (Colombia)*

Research Interests

Application of reinforcement learning for motor control tasks in robotics. Learning from low fidelity domains for simulation to robot transfer. Bayesian methods in robotics.

Publications

Refereed Conference Papers

2017	Gamboa Higuera, J. C., Meger, D., and Dudek, G. (2017a). Adapting Learned Robotics Nehaviours through Policy Adjustments. In *2017 IEEE International Conference on Robotics and Automation (ICRA '17)*, Singapore
2015	Meger, D., Gamboa Higuera, J. C., Xu, A., Giguere, P., and Dudek, G. (2015). Learning legged swimming gaits from experience. In *2015 IEEE International Conference on Robotics and Automation (ICRA '15)*
2013	Gamboa Higuera, J. C. and Dudek, G. (2013). Fair Subdivision of Multi-Robot Tasks. In *2013 IEEE International Conference on Robotics and Automation (ICRA '13)*, Karlsruhe, Germany
2012	Gamboa Higuera, J. C., Xu, A., Shkurti, F., and Dudek, G. (2012). Socially-driven collective path planning for robot missions. In *9th Canadian Conference on Computer and Robot Vision (CRV '12)*, Toronto, Canada

Workshop abstracts

2017	Gamboa Higuera, J. C., Meger, D., and Dudek, G. (2017b). Synthesizing neural network controllers with probabilistic model-based reinforcement learning. In *2nd Bayesian Deep Learning Workshop at NIPS 2017 (BDL 2017)*, Long Beach, California, United States

Seminars and Talks

Sep 2017	*From simulation to the field: Learning to swim with the AQUA robot.* Robot Operating System Conference (ROSCon 2017), Vancouver, British Columbia, Canada.

Professional Experience

2016–2017   **Computer Vision Research Scientist**, *SPORTLOGiQ Inc.*

Automated camera calibration and tracking algorithm using self-supervised learning and convolutional neural networks. Data association algorithms for real-time tracking with multiple cameras.

2015   **Computer Vision Research Intern**, *SPORTLOGiQ Inc.*

Designed an algorithm for automated camera calibration using synthetic templates

2009   **Software Engineer**, *Unisys Colombia*

Optimized front-end code for low bandwidth channels for a web-based banking system.

Teaching Experience

2011–2016   **Teaching Assistant**, *McGill University*

Teaching assistant for Introduction to Computer Science (Winter 2011, Winter 2012), Software Development (Fall 2011), Introduction to Computer Animation (Winter 2013), Theory of Computation (Fall 2014), and Artificial Intelligence (Winter, 2016)

Fall 2014   **Course Lecturer**, *McGill University*

Instructor for Introduction to Programming.

Fall 2009   **Course Lecturer**, *San Martin University*

Instructor for Applied Mathematics in Software Engineering. The subject for the term was an introduction to robotics.

Technical Skills

Programming Python, C, C++, MATLAB, LaTeX, HTML, JavaScript

Robotics and Computer Vision ROS, Gazebo, OpenCV, experience with a variety of robotics related hardware

Other Embedded systems, PCB design, 3D printing.

Awards

Microsoft Research Dissertation Grant (2017).

MITACS Accelerate for research on Computer Vision at SPORTLOGiQ Inc. (2015)

Hydro-Quebec Doctoral Scholarship in Science (2013-2016).

McGill Graduate Research Mobility Award for research on marine robotics at Memorial University, under guidance of Dr. Ralf Bachmayer (2013).

McGill Graduate Excellence Award in Computer Science (2012-2013).

McGill Provost's Graduate Fellowship (2010).

Other

Native Spanish speaker. Proficient in English and French. Certified open water diver. I enjoy cycling and playing the ukulele. Full list of references available upon request.