

- ❖ D. Meger, J. Gamboa, A. Xu, P. Giguère, and G. Dudek. Learning Legged Swimming Gaits from Experience, in *Proc. of the IEEE International Conference on Robotics and Automation (ICRA'15)* (**finalist for the Best Conference Paper Award**), pp. 2332-2338, Seattle, USA, 2015.
- ❖ A. Xu and G. Dudek. OPTIMo: Online Probabilistic Trust Inference Model for Asymmetric Human-Robot Collaborations, in *Proc. of the ACM/IEEE International Conference on Human-Robot Interaction (HRI'15)*, pp. 221-228, Portland, USA, 2015.
- ❖ M. Doniec, A. Xu, and D. Rus. Robust Real-Time High Definition Underwater Video Streaming with AquaOptical II, in *Proc. of the IEEE International Conference on Robotics and Automation (ICRA '13)*, pp. 5117-5124, Karlsruhe, Germany, 2013.
- ❖ F. Shkurti, A. Xu, M. Meghjani, J. Gamboa, Y. Girdhar, P. Giguère, B. Dey, J. Li, A. Kalmbach, C. Prahacs, K. Turgeon, I. Rekleitis, and G. Dudek. Multi-Domain Monitoring of Marine Environments using a Heterogeneous Robot Team, in *Proc. of the IEEE/RSJ International Conference on Intelligent Robots and System (IROS '12)*, pp. 1747-1753, Vilamoura, Portugal, 2012.
- ❖ G. Dudek, J. Sattar, and A. Xu. A Visual Language for Robot Control and Programming: A Human-Interface Study, in *Proc. of the IEEE International Conference on Robotics and Automation (ICRA '07)*, pp. 2507-2513, Roma, Italy, 2007.

[EDUCATION]

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| McGill University, Montréal, Québec, Canada.
Ph.D. in School of Computer Science
Thesis: Efficient Collaboration with Trust-Seeking Robots
Supervisor: Professor Gregory Dudek
CGPA: 4.00 (out of 4.00) | 2008 – 2017
(degree granted in
February 2017) |
| McGill University, Montréal, Québec, Canada.
Bachelor of Computer Engineering
Minor in Software Engineering
CGPA: 4.00 (out of 4.00)
Great Distinction | 2004 – 2008
(degree granted
in May 2008) |

[RESEARCH COMMUNITY INVOLVEMENT]

- ❖ Program co-chair for [CRV 2018](#) and [CRV 2019](#)
- ❖ Reviewer for ICRA, IROS, RSS, RA-L, HRI, CoRL, CRV, ICCV, IJRR, AURO, ...
- ❖ Developer of the [ueye_cam ROS package](#) for IDS uEye cameras

[COMMUNICATION]

- ❖ Fluent in spoken and written English ❖ Adequate spoken French
- ❖ Adequate spoken Chinese Mandarin

[ROBOTICS AND SYSTEM DESIGN KNOWLEDGE]

- ❖ Proficient with Bayesian and statistical machine learning techniques, including Probabilistic Graphical Modeling, supervised regression, unsupervised clustering, and reinforcement learning methods
- ❖ Extensive knowledge of classical vision and robot perception algorithms, including color & edge processing, Hough transform, Iterative Closest Point, 2D image features (SIFT/SURF/...), etc.
- ❖ Extensive hands-on experience in designing, conducting, and managing robotics field experiments as well as controlled studies with human participants
- ❖ Familiar with core robotics algorithms for localization, SLAM, planning, and control
- ❖ Familiar with optimization-based algorithm design, such as using linear programming, mixed-integer programming, and gradient-based / gradient-free optimization methods
- ❖ Familiar with control-theoretic methods, including proportional-integral-derivative feedback design & tuning, trajectory optimization, etc.

[SOFTWARE DEVELOPMENT SKILLS]

- ❖ Fluent in Python, C++, C, MATLAB, HTML & JavaScript & CSS
- ❖ Extensive programming experience in 16+ years of academic and industrial research, producing 200,000+ lines of (Linux/cross-platform) code in 50+ projects
- ❖ Extensive experience with development toolchains/environments such as CMake, GNU/Linux build tools, Jupyter Notebook & Lab, VS Code
- ❖ Extensive experience with middlewares, frameworks, and libraries, including PyTorch, Tensorflow/Keras, ROS, Gazebo, OpenCV, Open3D, Ray+Tune+RLLib, Boost, Qt
- ❖ Experience with virtualization and remote control tools, including Docker, VNC, screen

[HARDWARE AND EMBEDDED SYSTEMS EXPERIENCE]

- ❖ Extensive working experience (software development, field deployment, electronics integration, platform maintenance) with:
 - Jaco2 and Gen3 manipulators by Kinova (www.kinovarobotics.com)
 - the Aqua family of amphibious robots by McGill University & Independent Robotics (www.aquarobot.net)
 - the Marine Autonomous Robotic Explorer (MARE) robotic surface vessel by McGill University
 - the Kingfisher unmanned surface vessel by Clearpath Robotics (www.clearpathrobotics.com/kingfisher)
 - the Unicorn UAV by Lockheed Martin Procerus Technologies (www.lockheedmartin.com/procerus)
 - the Pelican quadrotor by Ascending Technologies (www.asctec.de)
 - the AR.Drone and Bebop lines of quadrotors by Parrot Technologies (ardrone.parrot.com)
 - the Tello quadrotor by DJI / Ryze Robotics (www.ryzerobotics.com/tello)
 - the Husky wheeled robot by Clearpath Robotics (www.clearpathrobotics.com/husky)
 - the SL-Commander planetary rover, instrumented by MDA (www.mdacorporation.com)
 - the Kubota RTV rugged truck, instrumented by Clearpath Robotics (www.clearpathrobotics.com)
- ❖ Extensive operational and programming experience with Arduino-compatible microprocessor boards: Arduino Uno/Due/Yun; PJRC Teensy, ESP8266 & ESP32, etc.
- ❖ Programming, configuration, and signal debugging experience with communication protocols, including UART/USART, SPI, I2C
- ❖ Extensive experience with electronics prototyping, including through-hole soldering, and breadboard & wire-wrap circuit designs