

Florian Shkurti

<http://www.cs.toronto.edu/~florian> • florian@cs.toronto.edu • +1-905-828-3809

CURRENT POSITIONS

Assistant Professor (tenure-track) Department of Computer Science, University of Toronto Mathematical & Computational Sciences, University of Toronto Mississauga University of Toronto Institute for Aerospace Studies (Cross-Appointment) Director, Robot Vision & Learning (RVL) Lab	Dec 2018-
Scientific Advisory Board Propagator Ventures	Sept 2018-
Faculty Member University of Toronto Robotics Institute	May 2019-
Faculty Affiliate Vector Institute	Sept 2019-

EDUCATION

Ph.D.	Computer Science & Robotics, McGill University Thesis: <i>Algorithms and Systems for Robot Videography with Human Specifications</i> Supervisor: Gregory Dudek, GPA 4.0/4.0 Committee: Joelle Pineau, Doina Precup, Michael Langer	2012-2019
M.Sc.	Computer Science & Robotics, McGill University Thesis: <i>3D Simultaneous Localization and Mapping (SLAM) using Visual and Inertial Measurements</i> , GPA 4.0/4.0 Supervisors: Gregory Dudek & Ioannis Rekleitis	2009-2011
H. B.Sc.	Computer Science & Mathematics, University of Toronto	2005-2009

AWARDS

Amazon Research Award, Robotics	2021
Best Paper Award, RSS, Self-Supervised Robot Learning Workshop	2020
Alexander Graham Bell CGS Doctoral (CGS-D) Award, NSERC, National	2014-2016
Graduate Student Excellence Award, McGill, Institutional	2013-2016
AAAI Robotics Fellowship, International	2015
FQRNT Doctoral Award, McGill, Provincial	2013-2014
Lorne Trottier Science Accelerator Fellowship, McGill, Institutional	2014
GREAT Award, McGill, Institutional	2015, 2017
Walter Sumner Foundation Award, McGill, National	2011-2013
Provost's Graduate Fellowship, McGill, Institutional	2009

Dean's Honor List, UofT, Institutional	2006-2009
Woodsworth College Student Association Award, UofT, Institutional	2008
Trenwith Award in Computer Science, UofT, Institutional	2007
Coxeter Scholarship in Mathematics, UofT, Institutional	2007
Exceptional High School Student Award, Eurobank, Athens, Greece, National	2005

RESEARCH STATEMENT

My research spans mobile robotics, machine learning, planning and control. My goal is to develop machine learning and perception methods that enable efficient and safe robot behaviors, particularly in outdoor environments and alongside humans. When human supervision and human-robot interaction are necessary, I want to enable people to effectively specify the desired behavior of their robots through as few interactive demonstrations as possible, without requiring them to write code. I work on the following topics:

1. **Autonomous robots for environmental monitoring and scientific exploration**

- Visual exploration and informed visual search
- Autonomous visual navigation
- Active sensing and information gathering
- Collaborative human-robot environmental monitoring
- Field robotics for environmental monitoring

2. **Machine learning for planning and control**

- Robust imitation learning from visual demonstrations
- Bayesian inverse reinforcement learning of cost functions
- Planning and control under uncertainty
- Task and motion planning
- Shared human-robot autonomy
- Continual learning
- Differentiable physics and rendering simulators

3. **Safety guarantees during robot learning**

- Physically-realizable adversarial scenarios for robotics
- Safe dual control, imitation, and transfer learning
- Backwards reachability, robust control

The main application of my research so far has been to enable environmental monitoring by robots that autonomously operate in the field and collect useful data for environmental scientists. Human-robot collaboration, learning from a few demonstrations, and robust navigation in 3D are critical in these outdoor domains.

PUBLICATIONS

Submitted Conference Papers (Under Review)

- IROS '21 Dhruv Sharma, Alihusein Kuwajerwala, Florian Shkurti. "Augmenting Offline Experience for Imitation Learning via Equivariant Representations". 8 pages
- IROS '21 Chris Agia, Ran Cheng, David Meger, Florian Shkurti, Gregory Dudek. "Attention-based Representations in Deep Reinforcement Learning for Autonomous Driving". 7 pages.

Peer-Reviewed Conference Papers

- ICLR '21 Homanga Bharadhwaj, Aviral Kumar, Nick Rhinehart, Sergey Levine, Florian Shkurti, Animesh Garg. "Conservative Safety Critics for Exploration". *International Conference on Learning Representations*. 25 pages.
- ICLR '21 Krishna Jatavallabhula, Miles Macklin, Florian Golemo, Vikram Voleti, Linda Petrini, Martin Weiss, Breandan Consideine, Jerome Parent-Levesque, Kevin Xie, Kenny Erleben, Liam Paull, Florian Shkurti, Sanja Fidler, Derek Nowrouzezahrai. "gradSim: Differentiable Physics and Rendering Engines for Parameter Estimation from Video". *International Conference on Learning Representations*. **Top 15% of accepted papers**. 25 pages.
- ICLR '21 Kevin Xie*, Homanga Bharadhwaj*, Danijar Hafner, Animesh Garg, Florian Shkurti. "Skill Transfer via Partially Amortized Hierarchical Planning". *International Conference on Learning Representations*. 13 pages.
- ICRA '21 Yizhou Huang, Kevin Xie, Homanga Bharadhwaj, Florian Shkurti. "Continual Model-Based Reinforcement Learning with Hypernetworks". *IEEE International Conference on Robotics and Automation*. 13 pages.
- ICRA '21 Homanga Bharadhwaj, Animesh Garg, Florian Shkurti. "LEAF: Latent Exploration Along the Frontier". *IEEE International Conference on Robotics and Automation*. 20 pages.
- ICRA '21 Yuchen Wu, Melissa Mozifian, Florian Shkurti. "Shaping Rewards for Combined Reinforcement and Imitation Learning via Generative Models". *IEEE International Conference on Robotics and Automation*. 7 pages.
- CVPR'21 Brendan Duke, Rohit Saha, Florian Shkurti, Graham Taylor, Parham Aarabi. "LOHO: Latent Optimization of Hairstyles via Orthogonalization". *Conference on Computer Vision and Pattern Recognition*. 18 pages.
- AAAI '21 Samarth Sinha, Homanga Bharadhwaj, Anirudh Goyal, Hugo Larochelle, Animesh Garg, and Florian Shkurti. "DIBS: Diversity-Inducing Information Bottleneck in Model Ensembles". *American Association of Artificial Intelligence*. 11 pages.
- RSS '20 Travis Manderson, Juan Camilo Gamboa-Higuera, Stefan Wapnick, Florian Shkurti, Jeff Tremblay, David Meger and Gregory Dudek. "Vision-Based Goal-Conditioned Policies for Underwater Navigation in the Presence of Obstacles". *Robotics: Science and Systems*.
- IROS '20 Ke Dong, Karime Pereida, Florian Shkurti, and Angela Schoellig. "Catch the Ball: Accurate High-Speed Motions for Mobile Manipulators via Inverse Dynamics Learning". *IEEE International Conference on Intelligent Robots and Systems*. 8 pages.

- IROS '20 Karim Koreitem, Florian Shkurti, Travis Manderson, Wei-Di Chang, Juan Camilo Gamboa Higuera, and Gregory Dudek. "One-Shot Informed Robotic Visual Search in the Wild". *IEEE International Conference on Intelligent Robots and Systems*. 8 pages.
- L4DC '20 Homanga Bharadhwaj*, Kevin Xie*, and Florian Shkurti. "Model-Predictive Control via Cross-Entropy and Gradient-Based Optimization". *Learning for Dynamics and Control*. 11 pages.
- ICRA '19 Yasasa Abeysirigoonawardena, Florian Shkurti and Gregory Dudek. "Generating Adversarial Self-Driving Scenarios in High-Fidelity Simulators". *IEEE International Conference on Robotics and Automation*. 7 pages.
- ICRA'18 Florian Shkurti, Nikhil Kakodkar, Gregory Dudek. "Model-Based Probabilistic Pursuit via Inverse Reinforcement Learning". *IEEE International Conference on Robotics and Automation*. 8 pages.
- IROS '17 Florian Shkurti, Wei-Di Chang, Peter Henderson, Jahidul Islam, Juan Camilo Gamboa Higuera, Jimmy Li, Travis Manderson, Anqi Xu, Gregory Dudek, and Junaed Sattar. "Underwater Multi-Robot Convoying using Visual Tracking by Detection". *IEEE International Conference on Intelligent Robots and Systems*. 8 pages.
- IROS '17 Florian Shkurti and Gregory Dudek. "Topologically distinct trajectory predictions for probabilistic pursuit". *IEEE International Conference on Intelligent Robots and Systems*. 8 pages.
- CRV '16 Travis Manderson, Florian Shkurti, Gregory Dudek. "Texture-Aware SLAM Using Stereo Imagery And Inertial Information". *Conference on Computer and Robot Vision*. 8 pages.
- IROS '14 David Meger, Florian Shkurti, David Cortes, Philippe Giguere, Gregory Dudek. "3D Trajectory Synthesis and Control for a Legged Swimming Robot". *IEEE International Conference on Intelligent Robots and Systems*. 8 pages.
- IROS '14 Qiwen Zhang, David Whitney, Florian Shkurti, Ioannis Rekleitis. "Ear-Based Exploration on Hybrid Metric/Topological Maps". *IEEE International Conference on Intelligent Robots And Systems*. 8 pages.
- CRV '14 Malika Meghjani, Florian Shkurti, Juan Camilo Gamboa Higuera, Arnold Kalmbach, David Whitney, Gregory Dudek. "Asymmetric Rendezvous Search at Sea". *Conference on Computer and Robot Vision*. 8 pages.
- ICRA '14 Florian Shkurti and Gregory Dudek. "Maximizing Visibility in Collaborative Trajectory Planning". *IEEE International Conference on Robotics and Automation*. 8 pages.
- ICRA '13 Florian Shkurti and Gregory Dudek. "On the Complexity of Searching for an Evader with a Faster Pursuer". *IEEE International Conference on Robotics and Automation*. 6 pages.
- IROS '12 Florian Shkurti, Anqi Xu, Malika Meghjani, Juan Gamboa, Yogesh Girdhar, Philippe Giguere, Bikram Dey, Jimmy Li, Arnold Kalmbach, Chris Prahacs, Katrine Turgeon, Ioannis Rekleitis, Gregory Dudek. "Multi-Domain Monitoring of Marine Environments Using a Heterogeneous Robot Team". *IEEE International Conference on Intelligent Robots and Systems*. 7 pages.
- CRV '12 Juan Camilo Gamboa Higuera, Anqi Xu, Florian Shkurti, Gregory Dudek. "Socially-Driven Collective Path Planning for Robot Missions". *Conference on Computer and Robot Vision*. 8

pages.

- IROS '11 Florian Shkurti, Ioannis Rekleitis, Milena Scaccia, Gregory Dudek. "State Estimation of an Underwater Robot using Visual and Inertial Information". *IEEE International Conference on Intelligent Robots and Systems*. 7 pages.
- IROS '11 Yogesh Girdhar, Anqi Xu, Bikram Dey, Malika Meghjani, Florian Shkurti, Ioannis Rekleitis, Gregory Dudek. "MARE: Marine Autonomous Robotic Explorer". *IEEE International Conference on Intelligent Robots and Systems*. 6 pages.
- CRV '11 Florian Shkurti, Ioannis Rekleitis, Gregory Dudek. "Feature Tracker Evaluation for Pose Estimation in Underwater Environments." *Conference on Computer and Robot Vision*. 8 pages.

Peer-Reviewed Workshop Papers

- RSS '20 Travis Manderson, Stefan Wapnick, Jean Francois Tremblay, Hanqing Zhao, Florian Shkurti, David Meger, Gregory Dudek. "Self-Supervised, Goal-Conditioned Policies for Navigation in Unstructured Environments". *RSS '20 Workshop on Self-Supervised Robot Learning*. **Best Paper Award**.
- RSS '20 Juan Camilo Gamboa Higuera, Travis Manderson, Karim Koreitem, Wei-Di Chang, Florian Shkurti, David Meger, Gregory Dudek. "Collaborative Human-Robot Exploration for Marine Environments". *RSS '20 Workshop on Assistive & Collaborative Robotics: Decoding Intent*.
- ICML'17 Peter Henderson, Wei-Di Chang, Florian Shkurti, Johanna Hansen, David Meger, Gregory Dudek. "Benchmark Environments for Multitask Learning in Continuous Domains". *Lifelong Learning Workshop at the International Conference on Machine Learning*.

PROFESSIONAL EXPERIENCE

- 2010-18 *Robotics Researcher, Mobile Robotics Lab, McGill University.*
Designed, implemented, and analyzed algorithms for control and motion planning under uncertainty. Extensive experience with robust estimation algorithms and probabilistic modeling. Extensive experience with vision-based 3D reconstruction, coupled with inertial measurements. Designed and deployed robotics systems in challenging outdoor environments (underwater, air, deserts). Experience with machine learning techniques for representation learning, reinforcement learning, variational inference, sampling, inverse reinforcement learning etc. Supervised by Prof. Gregory Dudek.
- 2016-17 *Robotics Consultant, Independent Robotics Inc. Montreal, QC.*
Provided integration and debugging services for software and hardware systems.
- 2015-16 *Co-Inventor of a hardware and software 3D mapping system. Montreal, QC.*
Integrated machine-vision cameras with an IMU and a mobile GPU. Created a stereo vision and IMU SLAM system. Won \$20,000 in startup funding.
- 2015 *Software Engineering Consultant, Lemay-Yates Associates Inc, Montreal, QC.*
Supervised by Robert Yates and Johanne Lemay. Provided systems review services for simulators of electromagnetic spectrum auctions.

- 2009 *Undergraduate Software Engineer, University of Toronto, ON.*
NSERC USRA, advised by Prof. Gregory Wilson. Implemented parts of Basie, a project management portal for classroom use that includes wiki pages, mailing lists, code reviews, and source code browsers.
- 2008 *Software Engineering Intern, Google Inc. Mountain View, CA.*
Ads Quality Team, supervised by Simon Favreau-Lessard and Michelle Levesque. Developed software infrastructure for statistical experiments.
- 2007 *Undergraduate Software Engineer, University of Toronto, ON.*
Google Summer of Code award. Advised by Prof. Karen Reid and Jason Montojo (IBM).
- 2006 *Undergraduate Research Assistant. A.U.G. Signals, Toronto, ON.*
NSERC Industrial USRA, supervised by Dr. George Lampropoulos. Designed signal-processing filters for the classification of spectral signatures of different types of terrains and plants.

TEACHING EXPERIENCE

University of Toronto

CSC2626: Imitation Learning for Robotics, graduate course. 34 students.	2021
CSC413: Neural Networks and Deep Learning, undergraduate course. 40 students.	2021
CSC477: Introduction to Mobile Robotics, undergraduate course. 46 students. Rated 4.6/5.0	2020
CSC477: Introduction to Mobile Robotics, undergraduate course. 25 students. Rated 4.7/5.0	2019
CSC2621: Imitation Learning for Robotics, graduate course. 30 students. Rated 4.7/5.0	2019
TA for Capstone course in AI for robot soccer, supervised by Prof. Steve Engels ¹	2009

McGill

Instructor for undergraduate robotics course, COMP417. 45 students. Rated 4.8/5.0	2017
TA for undergraduate algorithms course, COMP360, supervised by Prof. Yang Cai	2016
TA for graduate robotics course, COMP765, supervised by Prof. Gregory Dudek	2012
TA for graduate computer vision course, COMP558, supervised by Prof. Michael Langer	2011

STUDENT SUPERVISION

Current Ph.D. Students

Kevin (Cheng) Xie, University of Toronto, Computer Science. Co-supervised with Sanja Fidler. <i>Topic: Model-based reinforcement learning, generative models, and character animation</i>	Jan 2021-
Qiao Gu, University of Toronto, Computer Science. <i>Topic: TBD</i>	Sept 2021-

¹While an undergraduate student, I proposed the concept of the creation of this new AI course to the Computer Science department, and recruited students to enroll. The course was so popular that it was offered for two more semesters after I had graduated.

Current M.Sc. Students

Skylar Hao, University of Toronto, Computer Science. <i>Topic: Safe sim-to-real transfer</i>	Sept 2020-
Mohamed Khodeir, University of Toronto, Computer Science. <i>Topic: Learning-based Task and Motion Planning</i>	Sept 2021-
Salar Hosseini, University of Toronto, Computer Science. <i>Topic: Visual similarity learning for video events</i>	Sept 2021-
Philip (Yizhou) Huang, University of Toronto, Computer Science. <i>Topic: Continual learning for model-based RL</i>	Sept 2021-

Current Undergraduate Students

Hongyi Sun, University of Toronto, Computer Science. <i>Topic: Differentiable rendering for driving simulation</i>	2020-
Cong Wei, University of Toronto, Computer Science. <i>Topic: Video summarization</i>	2020-
Zoey Cui, University of Toronto, Computer Science. <i>Topic: TBD</i>	2021-
Ruiqi Wang, University of Toronto, Computer Science. <i>Topic: TBD</i>	2021-
Ben Agro, University of Toronto, Engineering Science. <i>Topic: TBD</i>	2021-
Aditya Saigal, University of Toronto, Engineering Science. <i>Topic: TBD</i>	2021-
Kimberly Hau, University of Toronto, Engineering Science. <i>Topic: TBD</i>	2021-
Yewon Lee, University of Toronto, Engineering Science. <i>Topic: TBD</i>	2021-

Alumni: MSc Students

Homanga Bharadhwaj, University of Toronto, Computer Science.	Sept 2019 - Dec 2020
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Co-supervised with Animesh Garg.
Topic: Safe exploration in reinforcement learning
Next: Carnegie Mellon University, PhD, Computer Science

Dhruv Sharma, University of Toronto, Computer Science. Sept 2019 - Dec 2020
Topic: Robust vision-based imitation learning through equivariant data augmentation

Kevin (Cheng) Xie, University of Toronto, Computer Science. Sept 2019 - Dec 2020
Co-supervised with Sanja Fidler.
Topic: Model-based RL and generative models
Next: University of Toronto, PhD, Computer Science

Ke Dong, University of Toronto, UTIAS. Sept 2019 - Dec 2020
Co-supervised with Angela Schoellig.
Topic: Learning for fast, dynamic control in mobile manipulation
Next: Tencent AI

Alumni: Visiting Students

Melissa Mozifian, Ph.D. student, MILA/McGill University, Computer Science. Summer 2019
Topic: Combining imitation and reinforcement learning

Alumni: Undergraduates

Chris Agia, University of Toronto, Engineering Science. 2020-2021
Thesis: Learning search heuristics using graph neural networks
Next: Stanford, PhD, Computer Science

Sally Chen, University of Toronto, Computer Engineering. 2020-2021
Topic: Differentiable rendering for driving simulation
Next: Carnegie Mellon University, MSc, Computer Science

Sherry Chen, University of Toronto, Engineering Science. 2020-2021
Topic: Visual similarity learning for video events
Next: MSc at UTIAS, University of Toronto

Salar Hosseini, University of Toronto, Engineering Science. 2020-2021
NSERC Undergraduate Research Award (USRA)
Topic: Visual similarity learning for video events
Next: MSc in Computer Science, University of Toronto

Andrei Ivanovic, University of Toronto, Engineering Science. 2020
ESROP Undergraduate Research Award
Topic: Visual similarity learning for LiDAR and RGB Images

Stephen Zhao, University of Toronto, Computer Science (with Prof. Yang Xu) 2020
 NSERC Undergraduate Research Award (USRA)
Topic: Multi-agent RL under fairness constraints
Next: MSc in Computer Science, University of Toronto

Ali Kuwajerwala, University of Toronto Mississauga, Computer Science. 2020
 NSERC Undergraduate Research Award (USRA)
Topic: Backwards reachability for nonlinear systems
Next: MSc in Computer Science, MILA/UdeM

Cathlyn Chen, University of Toronto, Engineering Science. 2020
Topic: Backwards reachability for nonlinear systems

Kamran Ramji, University of Toronto, Engineering Science. 2020
Topic: Combining imitation and reinforcement learning
Next: Apple Inc

Philip (Yizhou) Huang, University of Toronto, Engineering Science. 2019-2021
 UTEA summer research award.
Topic: Continual learning for model-based RL
Next: MSc in Computer Science, University of Toronto

Yuchen Wu, University of Toronto, Engineering Science. UTEA summer research award. 2018-2020
 Honorable mention, CRA Outstanding Undergraduate Researcher Award.
Topic: Combining imitation and reinforcement learning
Next: MSc at UTIAS, University of Toronto

Zihan Wang, University of Toronto, Engineering Science 2019
Topic: Reading course on imitation learning
Next: Stanford, Computer Science, MSc

Zidong Weng, University of Toronto, Computer Engineering 2019-2020
Topic: Deep predictive models for imitation learning
Next: Intel

Julia Chae, University of Toronto, Engineering Science, USROP summer research award. 2019
Topic: Adversarial attacks on combined vision and LiDAR classifiers

Siyun Li, University of Toronto, Engineering Science. USRA summer research award. 2019-2020
Topic: Generating adversarial driving scenarios in differentiable LiDAR simulators.
Next: Stanford, Computer Science, MSc

Fengjia Zhang, University of Toronto, Computer Science. 2019-2020
Topic: Adversarial attacks for self-driving

Shichen Lu, University of Toronto, Engineering Science <i>Topic: POMDP planning as variational inference</i> <i>Next: UTIAS, MSc</i>	2019-2020
Zichu Liu, University of Toronto, Engineering Science <i>Thesis: Query-efficient imitation learning via bootstrapping</i>	2018-2019
Haozhe Sheng, University of Toronto, Engineering Science <i>Thesis: Action-conditional video prediction via vector quantization</i> <i>Next: Google Inc</i>	2018-2019
Yasasa Abeysirigoonawardena, McGill University, ECE <i>Topic: Active learning for generating challenging driving scenarios.</i> <i>Next: Unity 3D Game Engine</i>	2018-2019
Peter Park, McGill University, CS <i>Topic: Multi-agent Bayesian inverse reinforcement learning.</i>	2018
Gabe Cemaj Hochstein, McGill University, CS <i>Topic: Imitation learning for Partially Observable Markov Decision Processes (POMDPs).</i> <i>Next: Bloomberg</i>	2017
Daniele Bercovici, McGill University, CS <i>Topic: Human-aware autonomous social robot navigation.</i>	2016

APPROVED FUNDING

Amazon Research Award in Robotics, Gift, \$100,000 USD <i>Generating physically realizable adversarial driving scenarios via differentiable physics and rendering simulators.</i> Primary applicant: Florian Shkurti	2020-2021
CFI John Evans Leaders Fund, Equipment Grant, \$352,000 CAD <i>Autonomous Mobile Manipulation in Human Environments: Learning Algorithms and Robot Systems.</i> Primary applicant: Florian Shkurti. Co-applicant: Animesh Garg.	2020-2023
NSERC Research Tools and Instruments, Equipment Grant, \$149,000 CAD <i>Autonomous Robots for Scientific Monitoring of Marine Environments.</i> Primary applicant: Florian Shkurti. Co-applicant: Igor Gilitschenski.	2020-2021
Dean's Strategic Fund, Faculty of Applied Science and Engineering, U. of Toronto \$325,000. <i>Connecting the Bots: Accelerating Joint Robotics Research between UTIAS</i>	2020-2023

and UTM. Primary applicant: Tim Barfoot. Co-applicants: Jessica Burgner-Kahrs, Steven Waslander, Angela Schoellig, Jon Kelly, Animesh Garg, Florian Shkurti.

New Frontiers in Research Fund (NFRF) Exploration, \$250,000 CAD 2020-2022
Reproducible Chemical Synthesis and Materials Discovery via Human Demonstrations and Autonomous Robotics. Primary applicant: Florian Shkurti.
Co-applicants: Animesh Garg, Sanja Fidler, Angela Schoellig, Alan Aspuru-Guzik.

NSERC Discovery, \$127,500 CAD 2019-2024
New Directions in Robotic Environmental Monitoring via Machine Learning.
Primary applicant: Florian Shkurti.

University of Toronto XSeed Award, \$120,000 CAD 2019-2021
Active and Sample-Efficient Robot Learning with Human Guidance.
Co-applicants: Angela Schoellig, Tovi Grossman, Florian Shkurti.

INVITED TALKS

Robots in the Wild: From Task Specification to Safety During and After Learning 2021
Vector Institute, Toronto.

Safe and continual robot learning 2020
LG, Toronto.

Algorithms and systems for robot videography 2020
MILA, Montreal.

Collaborative Human-Robot Exploration 2020
NSERC Canadian Robotics Network (NCRN).

Shaping Rewards for Combined Reinforcement and Imitation Learning 2019
Huawei AI Lab, Toronto.

Introduction to Reinforcement Learning 2019
NextAI, Toronto.

Collaborative Human-Robot Environmental Monitoring 2019
Symposium Speaker, Conference on Computer and Robot Vision.

Enabling Robot Videographers to Record the Visual Footage that Human Experts Want. 2018
University of Toronto, McGill University.

CONFERENCE ACTIVITY

Workshops Co-Organized

Differentiable vision, graphics, and physics applied to machine learning 2020
NeurIPS. Co-organizers: Krishna Murthy Jatavallabhula, Kelsey Allen, Victoria Dean, Johanna Hansen, Shuran Song, Florian Shkurti, Liam Paull, Derek Nowrouzezahrai, Josh Tenenbaum.

Debates on the future of robotics research 2020-21
IEEE International Conference on Robotics and Automation. Co-organizers: Matthew Giamou, Valentin Peretroukhin, Lee Clement, Sylvia Herbert, Brian Wang, Patricia Alves Oliveira, Sarah Tang, Maira Saboia da Silva, Sudharshan Suresh, Felix von Drigalski, Jaime Fisac, Jonathan Kelly.

Sessions Organized

Motion Planning for Robotics 2017
IEEE International Conference on Robotics and Intelligent Systems. Vancouver, Canada.

Panels

Deep Learning for Robotics 2017
Panel member with Joelle Pineau, John Tsotsos, Jon Kelly, and Martin Gerdzhev; chaired by Richard Vaughan. NSERC Canadian Field Robotics Network, Annual General Meeting, Ottawa, Canada.

SERVICE

Internal

Seminar Committee, University of Toronto Robotics Institute 2019-
Education Committee, University of Toronto Robotics Institute 2019-
MCS Department Chair Search Committee, University of Toronto Mississauga 2021
Graduate Admissions Committee, Department of Computer Science, University of Toronto 2021
Graduate Meta-Skills Committee, Department of Computer Science, University of Toronto 2020
Graduate Affairs Committee, Department of Computer Science, University of Toronto 2020
Robotics Faculty Search Committee, Department of Computer Science, University of Toronto 2019
ACT Building Committee, University of Toronto Mississauga 2019

External

Reviewer, *International Journal of Robotics Research, IJRR*
Area Chair, *Neural and Information Processing Systems, NeurIPS*
Reviewer, *Neural and Information Processing Systems, NeurIPS*
Program Committee, *Conference on Robot Learning, CoRL*

Associate Editor, *IEEE International Conference on Intelligent Robots and Systems, IROS*
 Reviewer, *IEEE International Conference on Robotics and Automation, ICRA*
 Reviewer, *IEEE International Conference on Robotics and Intelligent Systems, IROS*
 Reviewer, *Conference on Robot Learning, CoRL*
 Reviewer, *Robotics: Science and Systems, RSS*
 Reviewer, *International Symposium on Experimental Robotics, ISER*
 Reviewer, *Conference on Computer and Robot Vision, CRV*
 Reviewer, *Robotics and Automation Letters, RA-L*
 Reviewer, *Transactions on Robotics and Automation, TRO*

SELECTED MEDIA COVERAGE

Venture Beat. <i>Researchers propose 'safe' reinforcement learning algorithm for dangerous scenarios</i>	2020
IEEE Spectrum. <i>Robotic Airplane, Boat, and Submarine Team Up to Monitor Coral Reefs.</i>	2012

OUTREACH

Faculty co-sponsor of "Her Code Camp", a free computer science summer camp for high school students who identify as women, non-binary, or transgender	2019-
Taught at McGill's Computer Science Summer Camp for high school students.	2013, 2015
Helped conduct lab tours for high school students.	2012-2017
Represented McGill's School of Computer Science at Vanier College for Science Week.	2010
Ambassador of the Department of Computer Science at the University of Toronto.	2009

LANGUAGES

English (fluent); Greek (fluent); Albanian (fluent); French (basic).

Updated April 2021