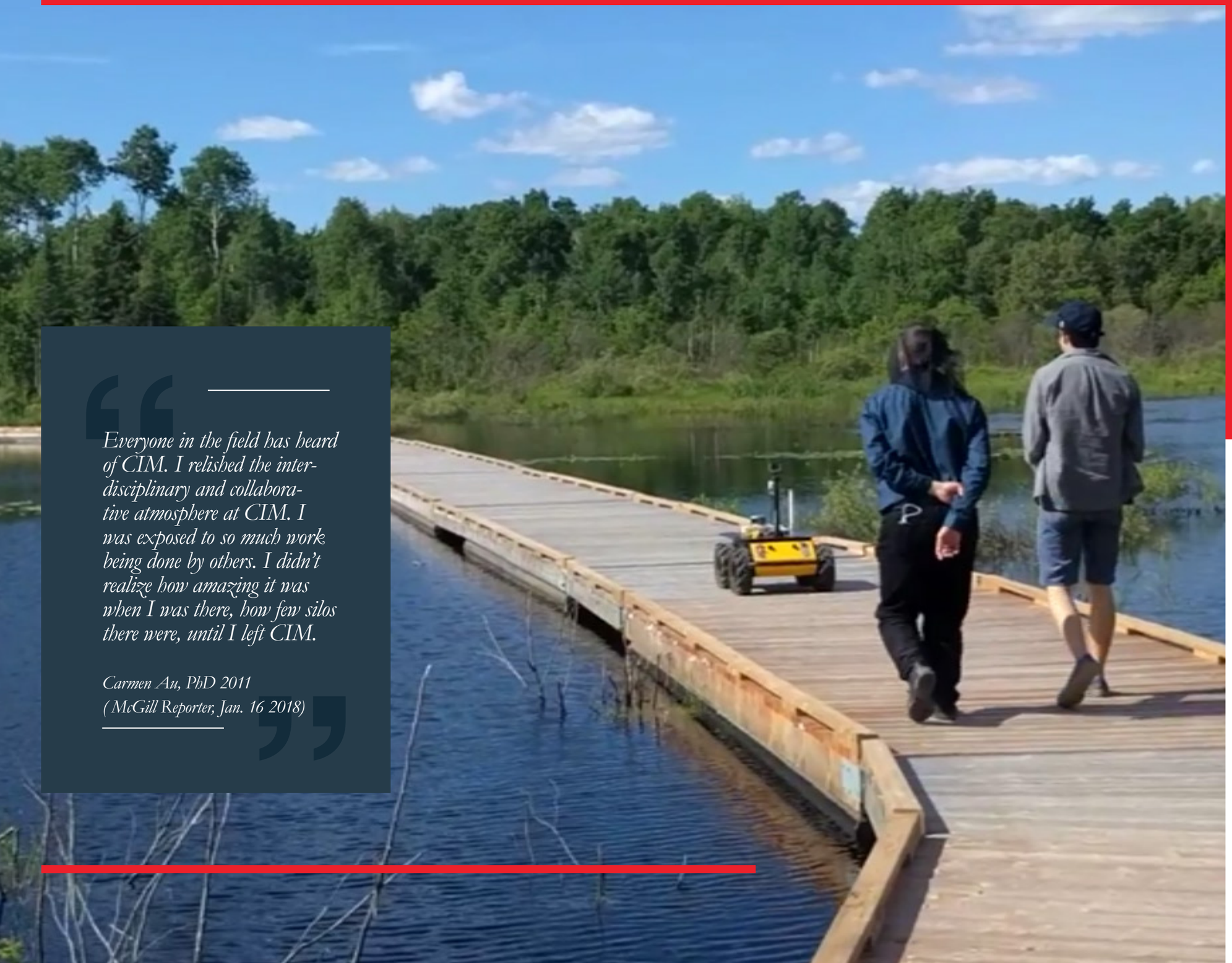
2017

CENTRE FOR INTELLIGENT MACHINES

ANNUAL REPORT

McGill



> *Everyone in the field has heard of CIM. I relished the inter-disciplinary and collaborative atmosphere at CIM. I was exposed to so much work being done by others. I didn't realize how amazing it was when I was there, how few silos there were, until I left CIM.*
>
> *Carmen Au, PhD 2011*
> *(McGill Reporter, Jan. 16 2018)*

A message from the Centre Director

James Clark

The 32nd year of the Centre's existence brings renewed interest in Intelligent Systems

2017 brought the newest member of the Centre - Professor Derek Nowrouzezahrai of the Department of Electrical and Computer Engineering - and a celebration of two of the Centre's founding members - Professor Martin Levine and Professor Jorge Angeles - who recently announced their retirements from teaching. Their research activities are still going strong, however!

2017 also brought a steady increase in the buzz surrounding the role of AI in today's world. As the Centre is a world leader in Applied AI and Intelligent Systems, there has been increased interest from industry, big and small companies alike, in learning more about the Centre's expertise in Applied AI.

About the Centre

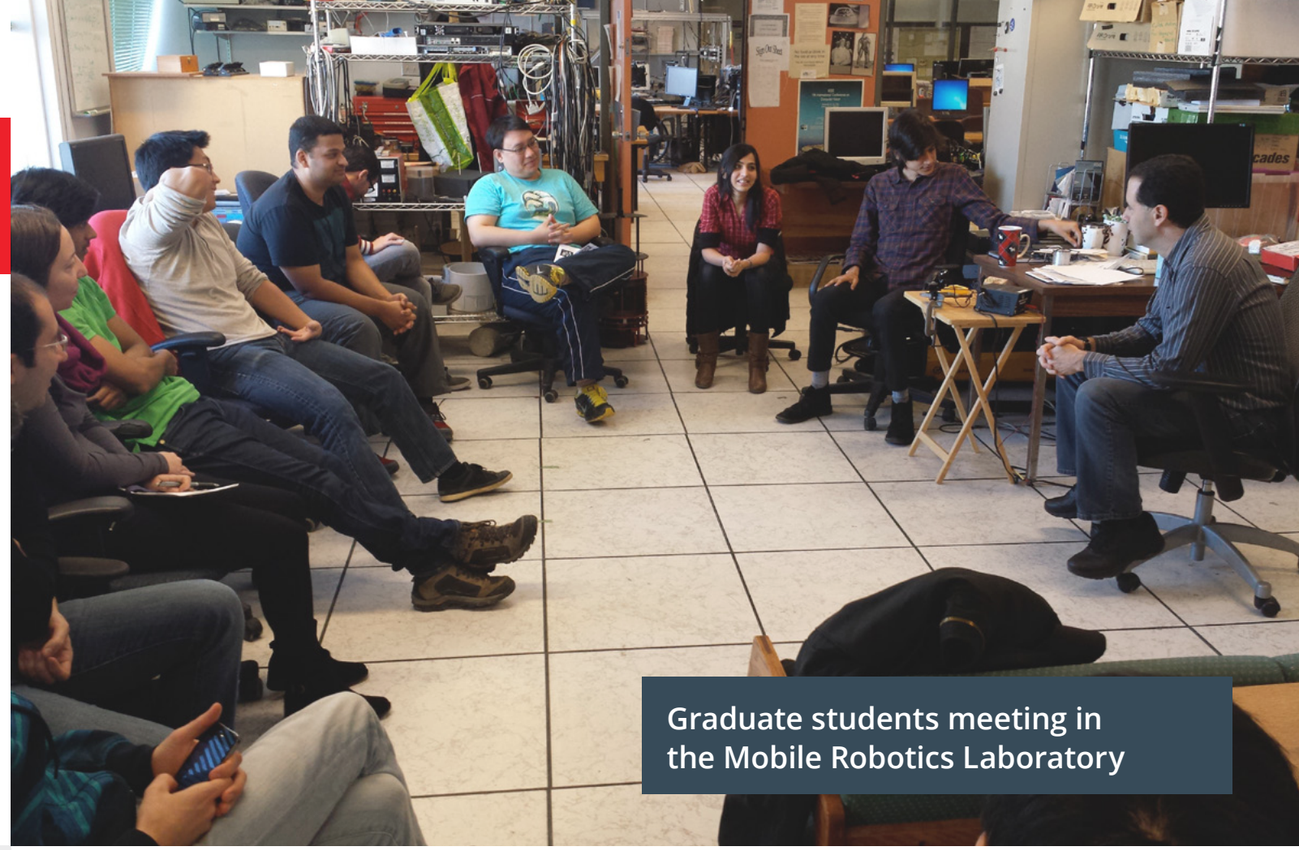
The McGill Centre for Intelligent Machines (CIM) is a multi-disciplinary, inter-departmental, inter-faculty research group formed in 1985 to to facilitate and promote research on intelligent systems and provide an enriched mentoring and training environment for graduate students studying in the field of robotics and intelligent systems.

For almost 3 decades, CIM has been a pioneering force in cross-disciplinary research. The Centre is primarily located in contiguous space where labs and student offices are shared. CIM's membership and students have been universally recognized over the years for their highest standards of excellence - exceptional scientific achievements and outstanding contributions to society and industry.

Intelligent systems and machines are capable of adapting their behaviour by sensing and interpreting their environment, making decisions and plans, and then carrying out those plans using physical actions. The members of CIM seek to advance the state of knowledge in such domains as — robotics, artificial intelligence, computer vision, medical imaging, haptics, systems and control, computer animation and machine and reinforcement learning.

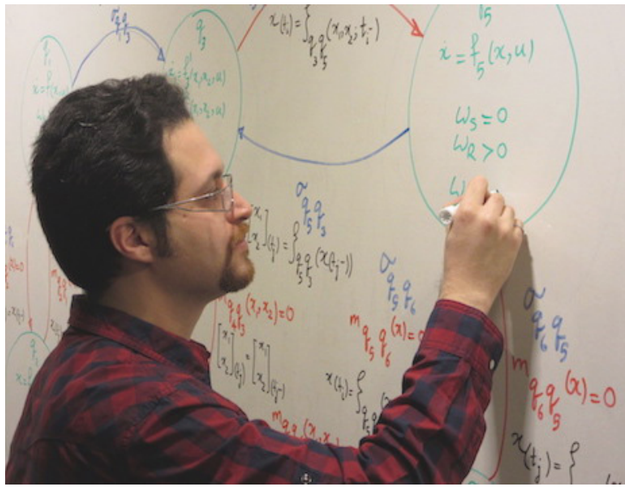
The Centre is comprised of 22 full members from both the Faculties of Engineering and Science -- the Department of Electrical and Computer Engineering, Department of Mechanical Engineering and the School of Computer Science. CIM also has associate members representing a diversity of research collaborations, such as within the Faculty of Medicine --the Royal Victoria Hospital and the Montreal Neurological Institute.

The Centre is home to a diverse population of researchers: in addition to the 22 full members, at the end of 2017 the centre boasted a complement in excess of 285 graduate students, post-docs and undergraduate students, as well as visiting scholars, research assistants and associates from various disciplines.



Graduate students meeting in the Mobile Robotics Laboratory

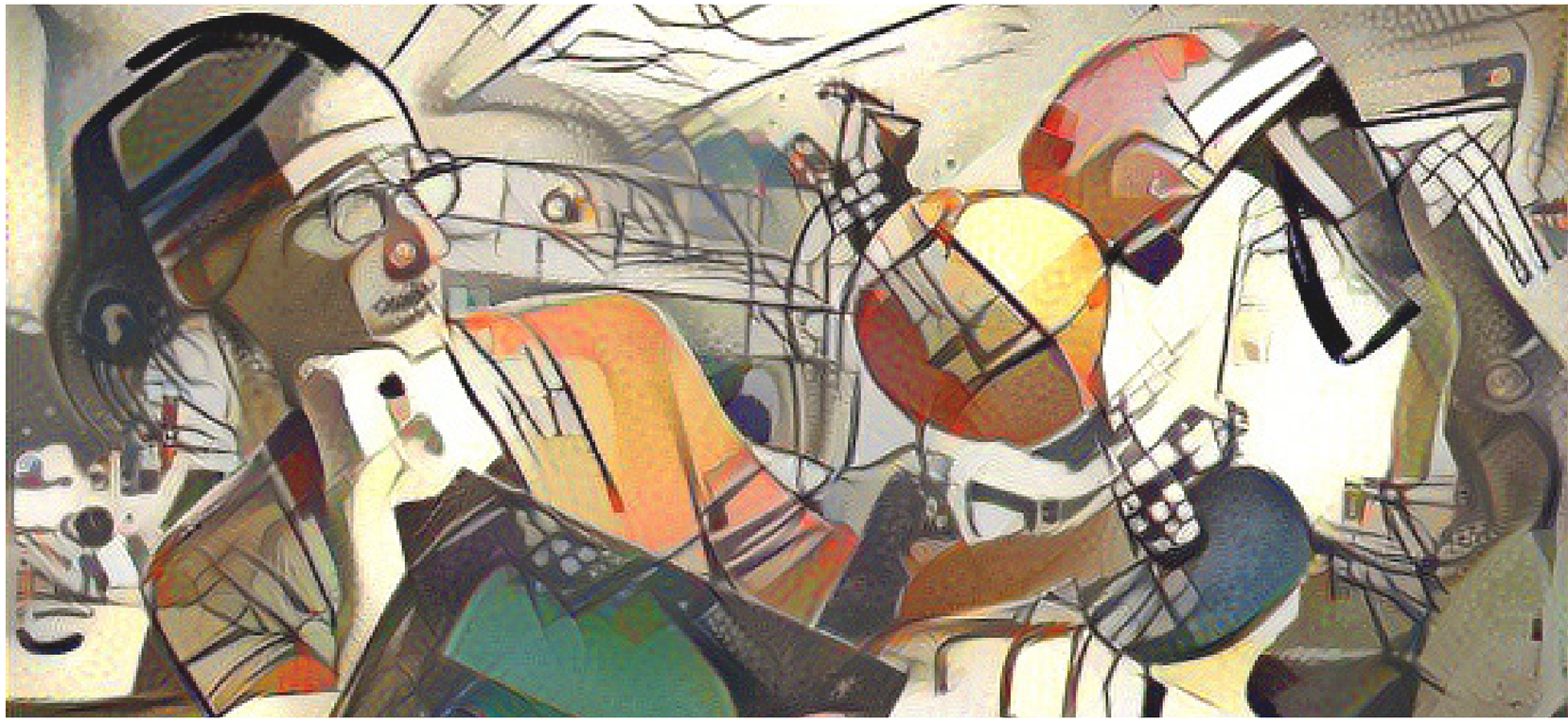
Professors:	22
PhD:	84
Masters:	94
Undergrad:	94
PostDoc:	14



Centre Governance

Day-to-day operation of the Centre's activities, management of its finances, allocation of space and other resources, are carried out by the Centre's Director, assisted by the Centre support staff.

The Centre is advised by the Centre's Board, which meets yearly to review the Centre's activities and budget, and to provide guidance on strategic planning.



2017 Board Members

James Clark - Centre Director, Board Chair

James Nicell - Dean, Faculty of Engineering

Bruce Lennox - Dean, Faculty of Science

Chris Manfredi - Provost and Vice Principal, Academic

Martha Crago - Vice Principal, Research and Innovation

Greg Dudek - Centre Member

Frank Ferrie - Centre Member

Kaleem Siddiqi - Alternate Centre Member

Pierre Breton - External Member, Executive Vice President, KWI Polymers.

Jason Taylor - Graduate Student

Centre Membership
Full Members

James Clark
Professor
Centre Director

Department of Electrical and Computer Engineering

Computer Vision

Jorge Angeles
James McGill Professor

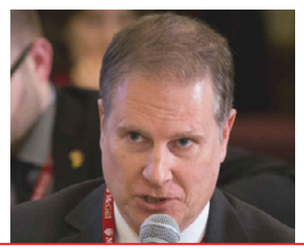
Department of Mechanical Engineering

Robotics and Mechatronics

Tal Arbel
Professor

Department of Electrical and Computer Engineering

Computer Vision and
Medical Image Analysis



Benoit Boulet
Associate Professor
Associate Dean

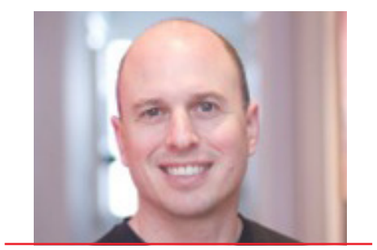
Department of Electrical and Computer Engineering

Systems and Control

Peter Caines
Macdonald Professor

Department of Electrical and Computer Engineering

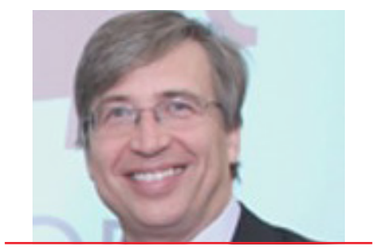
Systems and Control



Jeremy Cooperstock
Professor

Department of Electrical and Computer Engineering

Human-Computer Interaction



Gregory Dudek
James McGill Professor

School of Computer Science

Robotics and Computer Vision

Frank Ferrie
Professor

Department of Electrical and Computer Engineering

Computer Vision

James Richard Forbes
Assistant Professor

Department of Mechanical Engineering

Robotics and Aerospace Systems

Jozsef Kovecses
Associate Professor

Department of Mechanical Engineering

Robotics and Aerospace Systems

Paul Kry
Associate Professor

School of Computer Science

Computer Graphics

Michael Langer
Associate Professor

School of Computer Science

Computer Vision

> *As one of few women at the CIM and in Electrical and Computer Engineering, Arbel is working to promote science and engineering as fulfilling careers for women* (*McGill Reporter, Nov. 16 2017*)

Martin Levine
Professor

Department of Electrical and Computer Engineering

Computer Vision

Aditya Mahajan
Associate Professor

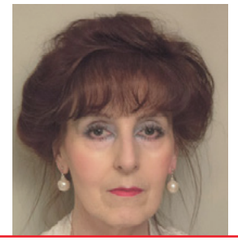
Department of Electrical and Computer Engineering

Systems and Control

David Meger
Assistant Professor

School of Computer Science

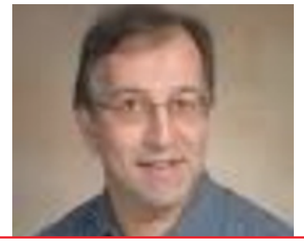
Robotics and Computer Vision



Hannah Michalska
Associate Professor

Department of Electrical and Computer Engineering

Systems and Control



Meyer Nahon
Professor
Chair, Mechanical Eng.

Department of Mechanical Engineering

Robotics and Aerospace Systems

Derek Nowrouzezahrai
Associate Professor

Department of Electrical and Computer Engineering

Computer Graphics

> *Back in 1985, Martin Levine was one of the first people working on and teaching Computer Vision – back then Pattern Recognition.* (*McGill Reporter, Jan. 16 2018*)

Joelle Pineau
Associate Professor

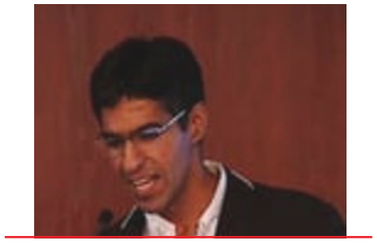
School of Computer Science

Machine Learning

Inna Sharf
Professor

Department of Mechanical Engineering

Robotics and Aerospace Systems



Kaleem Siddiqi
Professor

School of Computer Science

Computer Vision and Medical Image Analysis

Paul Zsombor-Murray
Associate Professor

Department of Mechanical Engineering

Robotic Mechanisms

Centre Support Staff

Centre Manager:	Marlene Gray
Computing Systems Manager:	Jan Binder
Administrator:	Chelsea Rogers
Computing Systems Support:	Nick Wilson

> *Pineau is a founding member of two multi-disciplinary ventures that led to the development of robotic assistants for elderly and disabled individuals* (*McGill Reporter, Apr. 20 2017*)

Centre Membership
Associate Members

Adamchuk, Viacheslav - Associate Professor, Bioresource Engineering, McGill University

Cecere, Renzo - Associate Professor, Cardiac Surgery (RVH), McGill University

Cheung, Jackie Chi Kit - Assistant Professor, School of Computer Science, McGill University

Collins, Louis - Professor, Biomedical Engineering, McGill University

Dimitrakopoulos, Roussos - Professor, Mining Engineering, McGill University

Hamann, Marco - Professor, Math/Informatics, Dresden University of Applied Sciences

Hayward, Vincent - Professor, ISIR, Université Pierre et Marie Curie, Paris France

Husty, Manfred - Professor, Geometry and CAD, University of Innsbruck, Austria

Liu, Xue - Associate Professor, Computer Science, McGill University

Misra, Arun - Thomas Workman Professor, Mechanical Engineering, McGill University

Mongrain, Rosaire - Associate Professor, Mechanical Engineering, McGill University

Musallam, Sam - Associate Professor, CRC in Bioengineering, ECE, McGill University

Panangaden, Prakash - Professor, Computer Science, McGill University

Paranjape, Aditya - Lecturer, Department of Aeronautics, Imperial College London

Pike, Bruce - Professor, Faculty of Medicine, University of Calgary

Precup, Doina - Associate Professor, Computer Science, McGill University

Visitors to the Centre

The Centre regularly hosts researchers on long-term (one month or more) visits. These include professors from other Universities on sabbatical leave research exchange students and research collaborators from industry.

Yosuke Kinoe - Hosei University - hosted by Jeremy Cooperstock

Lauriane Moy - ENSIMAG, Grenoble - hosted by Jeremy Cooperstock

Raviteja Chunduru - NIT Trichy, India - hosted by Martin Levine

Ani Dever - Turkey - hosted by Jeremy Cooperstock

Thang Doan - Desautels Management, Canada - hosted by David Meger

James Little - University of British Columbia - hosted by James Clark

Martin Stanley - Thinking Ventures, Canada - hosted by Gregory Dudek

David Corinaldi - Università Politecnica delle Marche, Italy - hosted by Jorge Angeles

Florian Golemo - INRIA, Bordeaux - hosted by David Meger

Honours and Distinctions
Celebrating Excellence

The outstanding contributions made by the Centre's researchers are frequently recognized through awards and other distinctions. 2017 was no exception to this, with many honours bestowed on our members.

Prof. Michael Langer was awarded the Canadian Image Processing and Pattern Recognition Society (CIPPRS) Lifetime Achievement Award for Research.

Prof. Greg Dudek received the 2017 IEEE Montreal Section Gold Medal Award for his international research in robotics and promoting the Canadian robotics community.

The EMEA Lumiere Award (with trophy) for Best Conference Paper, IC3D 2017 was awarded to PhD student Jonathan Bouchard and Prof. James Clark.

An Honorable Mention for Best Student Paper in the SMPTE Motion Imaging Journal was awarded to PhD student Jonathan Bouchard and Prof. James Clark in August 2017.

Prof. Peter Caines was awarded 3rd place nationally in NSERC Polanyi Prize competition: Nomination for the creation of Mean Field Games theory (2nd place nationally in 2016).

Prof. Joelle Pineau received an outstanding paper mention at ACL 2017.

Prof. Joelle Pineau was named Personnalité de la semaine (Sept.24 2017) by La Presse, Montreal, Canada.

Prof. Jozsef Kovecses is the recipient of the NSERC Synergy Award.

Prof. Jozsef Kovecses received an Honorary Professor Award from the Obuda University in Budapest, Hungary in September 2017.

Prof. James Richard Forbes was awarded second place in the Oral Presentation Section at the GAMES Graduate Research Day at McGill University in Montreal, QC on March 8, 2017.

Prof. James Richard Forbes was awarded the class of 1944 teaching award.

Prof. David Meger was awarded the Canadian Image Processing and Pattern Recognition Society Award for Service Excellence.

Far Left:
Professor Greg Dudek with the IEEE Montreal Section Gold Medal 2017
Left:
PhD student Mohammad Afshari with a Certificate of Appreciation for volunteer work for the WiSEE 2017 Conference

Bottom:
PhD student Jonathan Bouchard with the Lumiere prize for the Best Paper at the 2017 IC3D confrence

PhD student Juan Camilo Gamboa Higuera was named as one of the MITACS 150 for 150 celebrating researchers who will shape Canada's future.

PhD student Anqi Xu received the 2016 Doctoral Dissertation Award from the Canadian Image Processing and Pattern Recognition Society

PhD student Mohammad Afshari received a Certificate of Appreciation for volunteer work for the WiSEE 2017 Conference.

Centre Activities
Founders Symposium

On November 9th, 2017, the Symposium on Intelligent Machines was held in honour of two founding members, Profs. Jorge Angeles and Martin Levine.

The event took place at the Delta Hotel, and featured ten speakers on a variety of topics including robotics, artificial intelligence, and the contributions of the founding members to their respective fields of research. Following the talks, there was a banquet with 80 attendees, including many former and current members of CIM.

Professor Martin Levine

Professor Jorge Angeles

SYMPOSIUM SPEAKERS

Jim Little University of British Columbia
Pose, Transitions and Actions in Sports Video

Allan Dobbins University of Alabama at Birmingham
Binocular Vision and Ocular Dominance Columns: A Functional Theory

Mehrsan Javan SPORTLOGiQ
AI for Sports Analytics

Denis Poussart Laval University
Video testimonial

John Tsotsos York University
Video testimonial

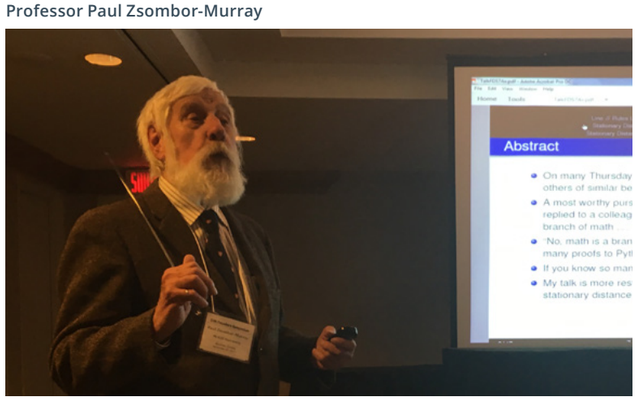
Bernard Roth Stanford University
Designing Mechanisms Based on User's Needs

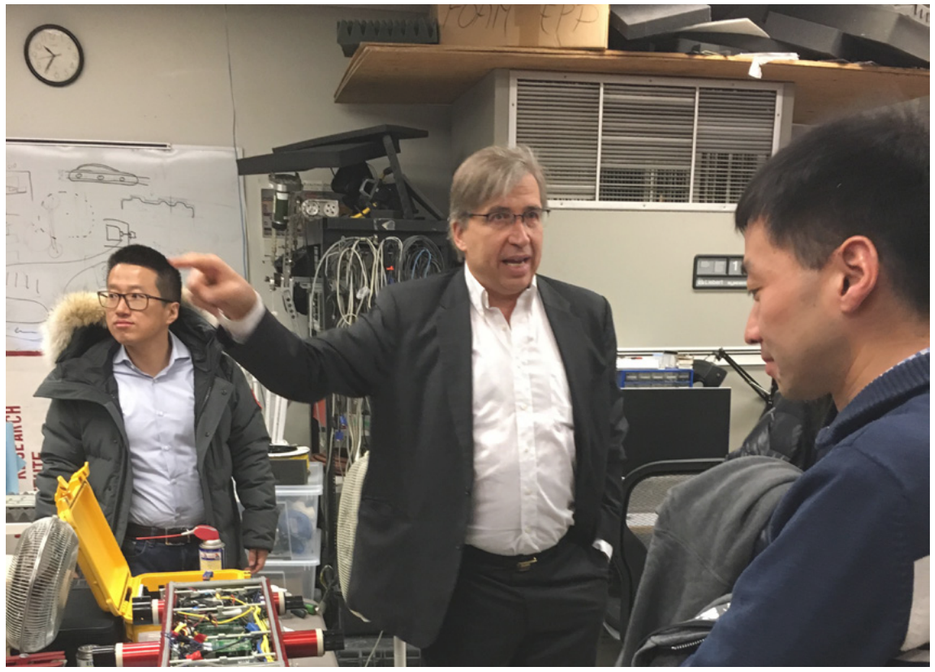
Clement Gosselin Laval University
Parallel Mechanisms: from fundamentals to physical human-robot interaction

Bahram Ravani University of California, Davis
Robotic Design and Motion Planning: from Manufacturing & Robotics Surgery to Highway Applications

Paul Zsombor-Murray McGill University
Geometry Seminars (GS) and Geometric Thinking: dedicated to Jorge Angeles

Professor Paul Zsombor-Murray





Professor Greg Dudek describing the AQUA robot to a delegation from a major Chinese company

Centre Activities

Visitors

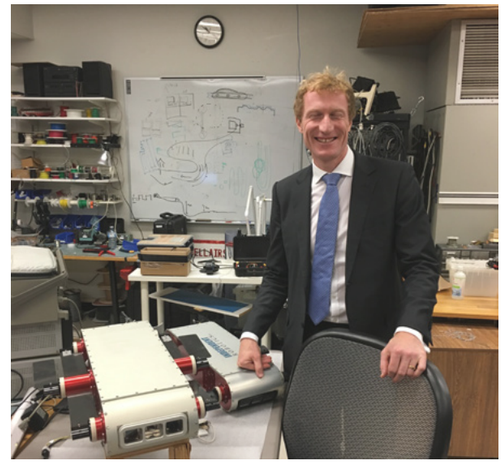
The high reputation of the research and researchers of the Centre attracts a regular stream of visitors interested in knowing more about our work.

Visitors include academic researchers, government officials, industry representatives and high school students.

The summer science program at McGill, Explorations, was given a tour of CIM on July 20th, to expose high school students to the field of engineering and encourage them to pursue further study in STEM fields. They visited the Mobile Robotics Lab, the Visual Motor Research Lab and the Applied Dynamics Lab. This opportunity to see live demonstrations and speak with current graduate students was inspiring and educational for the students.

Two members of the Canadian Parliament visted the Centre in 2017 - David Lametti (MP LaSalle—Émard—Verdun) and Marc Miller (MP Ville-Marie - Le Sud-Ouest - Île-des-Soeurs).

The growing importance of Artificial Intelligence (AI) to industry, led to frequent expressions of interest from companies in the expertise of CIM researchers. Many representatives of companies, big and small, came to visit the Centre in 2017. Some wish to remain anonymous for now, but others, such as Kinova Robotics, readily publicize their interest in working with the Centre.



Liberal Member of Parliament for Ville-Marie - Le Sud-Ouest - Île-des-Soeurs Marc Miller visited the Centre in October.

High school students watching a quadcopter drone take flight

Centre Activities
Field Research

Not all the work done by CIM researchers happens in the lab. Two of the Centre's strengths are its expertise in field robotics and aerospace systems. Much of our experimental work is done outside!

Professor Greg Dudek leads the NSERC Canadian Field Robotics Network (NCFRN). This is a pan-Canadian consortium of researchers in field robotics from Universities and Industry. Each year the NCFRN holds field trials where network members get together to test and demonstrate their robotic systems in challenging outdoors environments. In 2017 the NCFRN Field Trials were held in Ottawa.

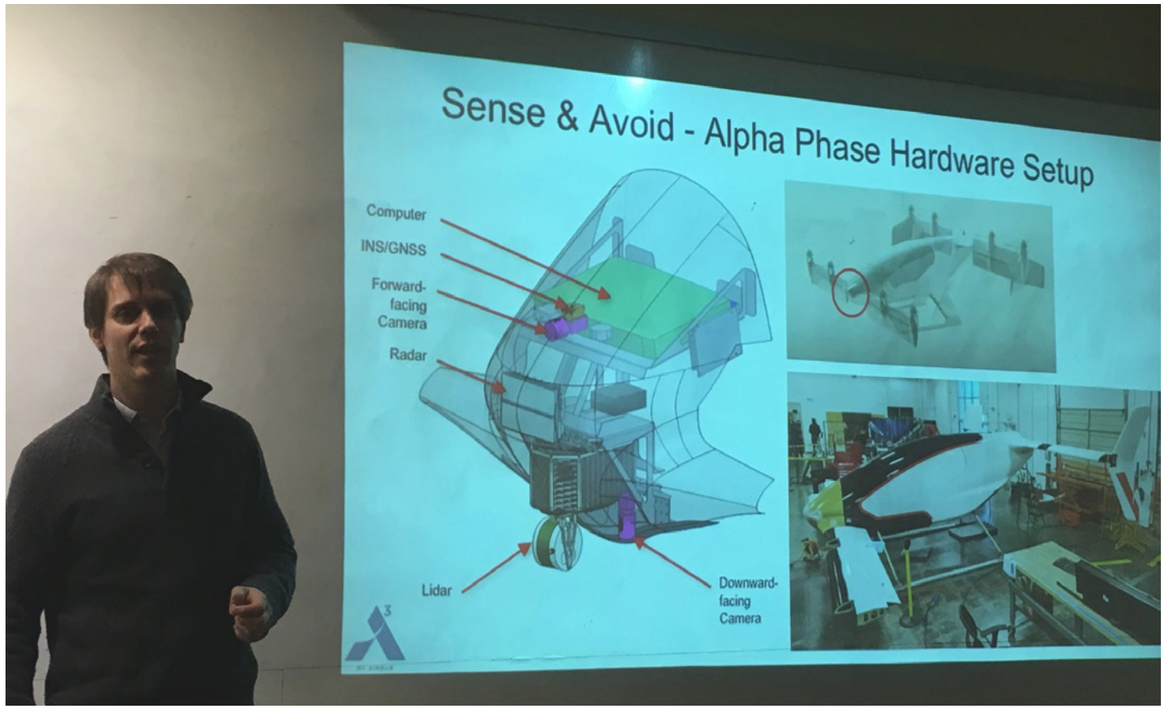
The Mobile Robotics Lab and others takes regular trips to the McGill Bellairs Research Institute in Barbados, to test the AQUA robots in the clear warm waters of the Caribbean. Usually they go when Montreal streets are covered with snow!

Professor James Forbes supervised a group of McGill students in launching a balloon and payload system at Varennes Quebec. The purpose was to test an autonomous parafoil payload delivery system to recover hardware from high altitudes.

Far Left:
The Mobile Robotics Group in Barbados, testing the AQUA robots

Left:
Sudents working under the supervision of Prof. James Forbes launch a balloon plus payload system at Varennes, Québec

Bottom:
Professor Dave Meger cooling his heels in Barbados while PhD student Juan Camilo Gamboa does some tweaking of an AQUA robot



Cedric Cocaud from A3 Airbus, talking about Autonomous Air Taxis

Centre Activities
Seminars

A vigourous exchange of ideas is the lifeblood of any active research Centre. Spearheaded by the long-running Informal Systems Seminar series, the Centre regularly hosts talks by eminent scholars from around the world.

SPEAKERS

Mouhamed Abdulla, Chalmers University of Technology, Sweden

Rachel Cummings, California Institute of Technology , USA

Ahmad Haidar, McGill University, Canada

Mina Rafinazari, University of Ottawa, Canada

Cody Hyndman, Concordia University, Canada

Maruthi Akella, University of Texas, USA

Pierre-Luc St-Charles, École Polytechnique de Montréal, Canada

RogerW.Brockett,HarvardUniversity,USA

M.C. Schraefel, University of Southampton, England

Peter E. Caines, McGill University, Canada

IpekOguz,UniversityofPennsylvania,USA

Jorge Cortes, University of California, San Diego, USA

Mohammed Abouheaf, Ecole Polytechnique de Montreal, Canada

Sven Dickinson , University of Toronto, Canada

Nikolai Matni, California Institute of Technology, USA

Derek Nowrouzezahrai McGill University, Canada

Velimir Jurdjevic, University of Toronto, Canada

MarcusBrubaker,YorkUniversity,Canada

Olga Veksler, Western University, Canada

Yuri Boykov, Western University, Canada

Sebastian Jaimungal, University of Toronto, Canada

StavrosTsogas,UniversityofToronto,Canada

Anit Kumar Sahu, Carnegie Mellon University, USA

Julien Hendrickx, UC Louvain, Belgium

Frank Riggi, Robert Bosch, USA

Tarek Hamel, University of Nice Sophia Antipolis, France

Ioannis Rekleitis, University of South Carolina, USA

Gautam Shroff , Tata Consultancy Services, Canada

Daniel Keren, Haifa University, Israel

Yogesh Girdhar, Woods Hole Oceanographic Institute, USA

Hamid D. Taghirad, K. N. Toosi University of Technology, Iran

Soulaimane Berkane, University of Western Ontario, Canada

Adam M. Oberman, McGill University, Canada

Aparna Lakshmiratan, Facebook

Ravi R. Mazumdar, University of Waterloo, Canada

Subhrakanti Dey, University of South Australia, Australia

Pierre Del Moral, Institute for Research in Computer Science and Automation (INRIA), France

Huaishu Peng, Cornell University, USA

TomokoOhyama,McGillUniversity,Canada

Pedro Lopes, Hasso Plattner Institute, Germany

Emily Whiting, Boston University, USA

Somayeh Sojoudi, University of California, Berkeley, USA

Demosthenis Teneketzis, University of Michigan, USA

Bill Buxton, Microsoft Research

CemTekin,BilkentUniversity,Ankara,Turkey

Cedric Cocaud, A3 by Airbus, USA

John R. Birge, University of Chicago Booth School of Business, USA

Liam Paull, Universite de Montreal and Montreal Institute for Learning Algorithms, Canada

Wolfgang Stuerzlinger, Simon Fraser University, Canada

ClémentGosselin,UniversitéLaval,Canada

Centre Activities
Fun and Relaxation

The Centre's members occasionally take time out to relax and connect with their fellow researchers. This interaction is aided by the mixing of different research groups in the labs and offices, and by the presence of the CIM lounge.

To mark the end of the fall semester, the students and professors at the Centre for Intelligent Machines convened in the George Zames seminar room for an afternoon of socializing and team building. The event was well attended and participants played a fun trivia game.

A public service video reminding people to clean the microwave oven in the lounge was aired. This lighthearted short film starred a number of the Centre's faculty members.

Far Left:
Centre staff in their holiday disguises at the CIM team building event

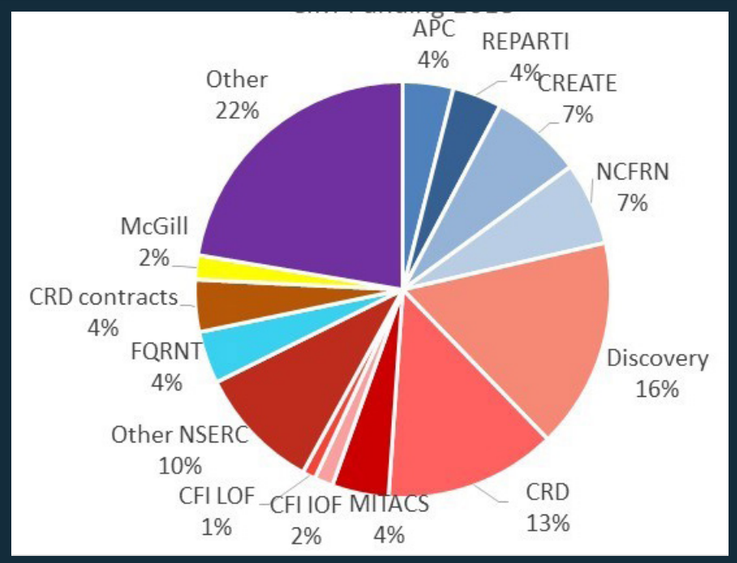
Top Left:
Professor Dudek recording the Kinova robot stealing the Grinch just before Christmas

Top Right:
Professors Meger and Pineau relaxing between takes while filming the CIM video

Middle Left:
Graduate students from Professor Clark's research group at the CIM team building event

Bottom Left:
Professor Arbel zapping computer bugs in the CIM video

Annual Research Funding
Statistically Speaking



16%
from NSERC Discovery Grants

$4,383,154
Total funding in 2017

+87%
Increase in CRD funding

Research Funding
Fuel for Innovation

The research carried out in the Centre is funded from a wide range of sources, including the Governments of Canada and Quebec (primarily through NSERC Discovery and Partnership grants and FRQNT grants) as well as industry (through research contracts and contributions to governmental partnership programs).

In 2017 the Centre's research funding was buttressed by four large inter-university collaborative programs - the FRQNT-funded Regroupement REPARTI, the NSERC-funded CREATE program in Medical Image Analysis, the NSERC funded Canadian Field Robotics Network, and the NSERC funded Automotive Partnership Canada program.

Details on these four cornerstone programs are provided over the next few pages.

Regroupement pour l'étude des environnements partagés intelligents répartis (REPARTI)

The regroupement REPARTI – Phase 2 (April 2013-March 2019) is a $2.6M inter-institutional, interdisciplinary collaborative venture comprised of 8 Quebec institutions, 35 members and over 300 students. The McGill node of REPARTI is represented by 13 members from the McGill Centre for Intelligent Machines (CIM). The members of the McGill node collaborate in grants and contracts valued in excess of $5M annually. This FRQNT regroupement is a primary funding source for the McGill Centre for Intelligent machines (CIM).

The institutions participating in REPARTI are: Université Laval (host institution), McGill University, Université de Sherbrooke, Ēcole Polytechnique, Université de Montréal, Université du Québec à Chicoutimi and École de technologie supérieure (ÉTS).

Supported by the Quebec government's Fonds de recherche Nature et technologies (FQRNT), this regroupement stratégique builds on some unique precedents:

(1) The historical and concrete partnership that developed over the past 25 years between prominent researchers in U. Laval and McGill (CIM) as a result of the NSERC National Centres of Excellence program, the interuniversity-industrial consortium IRIS-Precarn, and the FQRNT Réseau QERRAnet.

(2) The long and productive relationship established between the McGill Centre for Intelligent Machines (CIM) and the Quebec government through the former FCAR Centre de recherche programme.

The regroupement REPARTI was successfully renewed in 2013 for 6 years until 2019. A renewal of the regroupement is planned for 2018.

NSERC Collaborative Research and Training Experience in Medical Image Analysis

The CREATE-MIA, funded by NSERC, was started in 2012 and ends in March 2018, with the aim of training students for research careers in both academia and industry.

The program employs a collaborative and multi-faceted approach including:

- experts from academia, industry and/or medicine to oversee a trainee's progress throughout the program
- a selection of advanced courses from different academic departments to provide a comprehensive background in medical imaging
- internships with our industrial partners on company premises to give first-hand real-world industry experience
- participation in events such as seminars, workshops, and a summer school to broaden and enrich their knowledge-base
- participation in SKILLSETS training seminars offered by McGill University to gain professional skills that will be useful when entering the workforce or starting businesses of their own.

The institutions participating in CREATE-MIA are: McGill University (host institution), Université de Sherbrooke, and École de technologie supérieure (ÉTS).
Currently, the program supports 21 graduate students, 11 of whom are currently supervised by CIM members.

The director of the CREATE-MIA program is CIM member Kaleem Siddiqi. The program faculty includes CIM member Tal Arbel, CIM associate members Louis Collins, Bruce Pike, and CIM alumni Catherine Laporte (now assistant professor at ÉTS) and Maxime Descoteaux (now an assistant professor at Universite de Sherbrooke).

An LOI for a new CREATE program with many of the same participants has been submitted.

NSERC Canadian Field Robotics Network

The NCFRN is a Canada-wide network spanning 8 universities and 14 partner organizations. The network brings together academic, government, and industrial researchers in the area of field robotics, to develop the science and technologies to eventually allow teams of heterogeneous robots (on land, in the air, on the surface of or under water) to work collaboratively in outdoor environments, and to communicate critical information to humans who operate them or use them.

The NCFRN supports the work of 11 researchers from 8 different universities. It connects the academic participants with 10 industrial partners and 4 government agencies to leverage their complementary experience and capabilities. The network investigates fundamental issues in robotics science as well as develops technologies developed addressing particularly Canadian problems such as environmental monitoring and maintenance, border surveillance, cleanup of environmental disasters, and assisting and caring for senior citizens.

The NCFRN primarily provides direct support for students, thereby training highly qualified new researchers, engineers and technicians able to work in robotics-related industry.

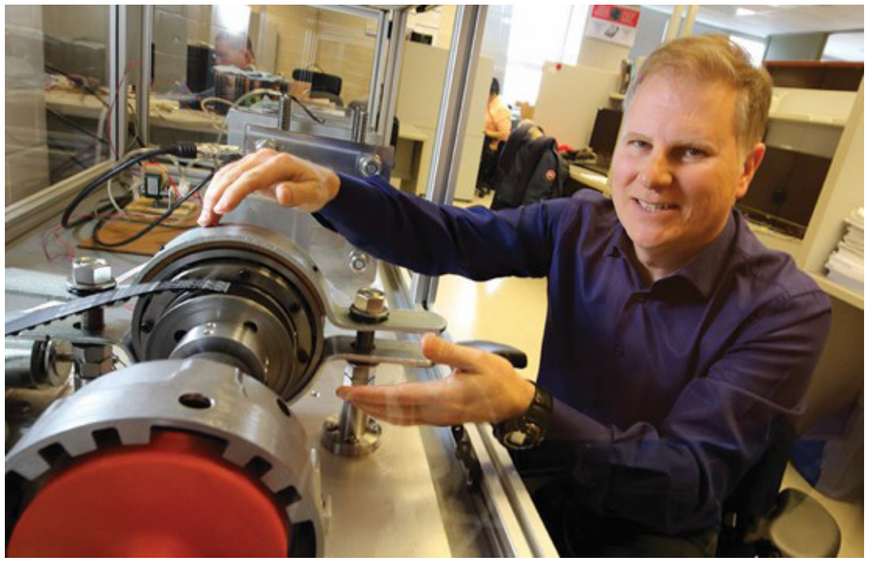
The NCFRN network management is hosted by McGill and CIM, with CIM member Greg Dudek serving as scientific director. CIM member Joelle Pineau serves as the leader of the thematic area “Human”. CIM member Inna Sharf is also a research member of the NCFRN.

The NCFRN is a 5-year program that started on June 30, 2012 and will end on June 29, 2018. A renewal of the network is being prepared.

Automotive Partnership Canada

CIM is home to a four -year, $4.6 million project, funded by the NSERC Automotive Partnership Canada program. The goal of this project is to combine electric motor technology obtained from Quebec-based TM4 Electrodynamic Systems with a multi-speed drive train from Ontario-based Linamar Corporation. This project aims to improve electric vehicle efficiency, speed and driving range without increasing drains on batteries. The research will reduce costs of electric vehicle engines through the development of multi-speed drivetrains that are smaller and lighter than the single-speed drivetrains currently in use.

The McGill APC project was announced in February 2013 and ended in August 2017, and was led by CIM member Professor Benoit Boulet.



CIM member Benoit Boulet, leader of the APC Project in Electric Vehicle Drivetrains, showing the energy efficient Dual-Brake Transmission (DBT) developed in the project.

Funding Breakdown by Source

Collaborative Programs

FUNDING SOURCE	Start Date	End Date	Grant Total	CIM 2017
Automotive Partnership Canada (APC)	FEBRUARY 2013	AUGUST 2017	$4,700,000	$164,522
REPARTI (FRQNT Regroupement)	APRIL 2006	MARCH 2019	$4,000,000	$160,000
NSERC CREATE (Medical Image Analysis)	APRIL 2012	MARCH 2018	$1,650000	$300,000
NSERC Canadian Field Robotics Network	JUNE 2012	JUNE 2018	$5,000,000	$270,000

Individual Grants

NSERC Discovery			$3,342,000	$684,400
NSERC CRD			$1,698424	$728,412
MITACS			$224,200	$184,600
CFI IOF & LOF (operating funds)			$274,981	$103,381
FRQNT			$649,353	$169,863
Others (including McGill contributions)			$2,851,392	$1,617,976
TOTALS OF ALL FUNDING SOURCES	-	-	**$24,390,350**	**$4,383,154**

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X. Chen, S. Andrews, D. Nowrouzezahrai, P. G. Kry, Ballistic Shadow Art, Graphics Interface, pp. 190-198, May 2017. DOI: 10.20380/GI2017.24

S. Andrews, K. Erleben, P.G. Kry, and M. Teichmann, Constraint Reordering for Iterative Multi-body Simulation with Contact. In ECCOMAS Thematic Conference on Multibody Dynamics. 2 page abstract.

LANGER, Michael

V. A. Petrella, S. Labute, M.S. Langer, P. G. Kry, "Defocus Discrimination in Video: Motion in Depth". i-Perception, Nov. (2017) https://doi.org/10.1177/2041669517737560

M.S. Langer, M, Scaccia, "The luminance-depth gradient in 3D clutter: When does dark mean deep?" (Abstract) European Conference on Visual Perception, Berlin, Germany, Aug. 2017

MAHAJAN, Aditya

J. Chakravorty* and A. Mahajan, "Fundamental limits of remote estimation of autoregressive Markov processes under communication constraints," IEEE Transactions on Automatic Control, pp. 1109–1124, March 2017.

C. Ma*, A. Mahajan, and B. Meyer, "Multi-armed bandits for efficient lifetime estimation in MPSoC design," Design, Automation and Test in Europe (DATE), Laussane, Switzerland, Mar 23–27, 2017.

J. Chakravorty*, J. Subramanian*, and A. Mahajan, "Stochastic approximation based methods for computing the optimal thresholds in remote-state estimation with packet drops," American Control Conference, Seattle, WA, May 24–26, 2017.

J. Chakravorty* and A. Mahajan, "Structure of optimal strategies for remote estimation over Gilbert-Elliott channel with feedback," IEEE International Symposium of Information Theory (ISIT), Aachen, Germany, Jun 25–30, 2017.

M. Afshari* and A. Mahajan, "Static teams with common information," IFAC World Congress, Toulouse, France, Jul 9–14, 2017.

A. Mahajan, "Remote estimation over control area networks," IEEE Vehicular Technology Conference (VTC), Networked Vehicles for Intelligent Transportation and Smart Grids (NetV) Workshop, Toronto, Canada, Sep 24–27, 2017.

Y. Liu, A. Khisti, and A. Mahajan, "On Privacy in Smart Metering Systems with Periodically Time-Varying Input Distribution," GlobalSIP Symposium on Control and Information Theoretic Approaches to Security and Privacy, Montreal, Canada, Nov 14–16, 2017.

MEGER, David

Peter Henderson, Wei-Di Chang, Florian Shkurti, Johanna Hansen, David Meger, and Gregory Dudek. Benchmark environments for multitask learning in continuous domains. In The Multitask and Lifelong Learning Workshop at the International Conference on Machine Learning (ICML), 2017.

Peter Henderson, Thang Doan, Riashat Islam, and David Meger. Bayesian policy gradients via alpha divergence dropout inference. In Proceedings of 2nd Bayesian Deep Learning (BDL) Workshop at the Conference on Neural Information Processing Systems (NIPS), 2017.

Juan Camilo Gamboa Higuera, David Meger, and Gregory Dudek. Adapting learned robotics behaviours through policy adjustment. In Proceedings of the International Conference on Robotics and Automation (ICRA), 2017.

Juan Camilo Gamboa Higuera, David Meger, and Gregory Dudek. From simulation to the field: Learning to swim with the aqua robot. In The Robotic Operating System yearly Conference (ROSCON), September 2017.

Juan Camilo Gamboa Higuera, David Meger, and Gregory Dudek. Synthesizing neural network controllers with probabilistic model-based reinforcement learning. In Proceedings of 2nd Bayesian Deep Learning (BDL) Workshop at the Conference on Neural Information Processing Systems (NIPS), 2017.

Jimmy Li, David Meger, and Gregory Dudek. Context-coherent scenes of objects for camera pose estimation. In Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2017.

Edward Smith and David Meger. Improved adversarial systems for 3d object generation and reconstruction. In Proceedings of the Conference on Robot Learning (CoRL), 2017.

MICHALSKA, Hannah

Ghoshal, D., Gopalakrishnan, K., Michalska, H., “Using invariance to extract signal from noise”, The 2017 American Control Conference Proceedings, Seattle, WA, USA, 24-26 May, 2017, 6 pages.

Awan, F., Michalska, H., Joos, G., “Economic dispatch in microgrids using compromise solution in multi-objective optimization”, 12th IEEE PES PowerTech Conference Proceedings: Towards and Beyond Sustainable Energy Systems”, Manchester, United Kingdom, 18-22 June, 2017, 6 pages.

Ghoshal, D., Gopalakrishnan, K., Michalska, H., “Algebraic parameter estimation using kernel representation of linear systems”, The 20th IFAC World Congress Proceedings, Toulouse, France, 9-14 July, 2017, 6 pages.

Ghoshal, D., Gopalakrishnan, K., Michalska, H., “Kernel-based Adaptive Multiple Model Target tracking”, IEEE Conference on Control Technology and Applications Proceedings, Kohala Coast, Hawaii, USA, August 27-30, 2017, 6 pages.

Ghoshal, D., Michalska, H., “Double-sided kernel observer for linear time-varying systems”, IEEE Conference on Control Technology and Applications Proceedings, Kohala Coast, Hawaii, USA, August 27-30, 2017, 6 pages.

Fetallah, N, Saad, M., Michalska, H., Ghomam, J., “Robust tracking control for a quad-rotor UAV under perturbations”; IEEE Mediterranean Conference on Control and Automation, Proceedings, Valetta, Malta, 3-6 July 2017, 6 pages.

Fetallah, N, Saad, M., Michalska, H., Ghomam, J., “Robust observer-based backstepping controller for a quad-rotor UAV”, IEEE Canadian Conference on Electrical and Computer Engineering, Proceedings, Windsor, Canada, April 30- May 3, 2017, 6 pages.

Farkhatdinov, I., Michalska, H., Berthoz, H., Hayward, V., “Review of Anthropomorphic Head Stabilisation and Verticality Estimation in Robots”, in Springer Tracts in Advanced Robotics, Ed. Jean-Paul Laumond, Springer Verlag, Nov. 2017, 28 pages.

NAHON, Meyer

E. Bulka and M. Nahon, 2017, ‘Autonomous Control of Agile Fixed-Wing UAVs Performing Aerobatic Maneuvers’, International Conference on Unmanned Aircraft Systems (ICUAS’17), Miami, FL, June 13-16.

J. Levin, A. Paranjape and M. Nahon, 2017, ‘Agile Fixed-Wing UAV Motion Planning with Knife-Edge Maneuvers’, International Conference on Unmanned Aircraft Systems (ICUAS’17), Miami, FL, June 13-16.

A. Battiston, I. Sharf and M. Nahon, 2017, ‘Attitude Estimation for Normal Flight and Collision Recovery of a Quadrotor UAV’, International Conference on Unmanned Aircraft Systems (ICUAS’17), Miami, FL, June 13-16

NOWROUZEZAHRAI, Derek

Chakravarty Reddy Alla Chaitanya, Anton Kaplanyan, Christoph Schied, Marco Salvi, Aaron Lefohn, Derek Nowrouzezahrai, Timo Aila. “Interactive Reconstruction of Monte Carlo Image Sequences using a Recurrent Denoising Autoencoder”. ACM Transactions on Graphics - SIGGRAPH (Aug. 2017), 12 pages

Oliver Mercier, Yusufu Sulai, Kevin Mackenzie, Marina Zannoli, James Hillis, Derek Nowrouzezahrai, Douglas Lanman. “Fast Gaze-Contingent Optimal Decompositions for Multifocal Displays”. ACM Transactions on Graphics - SIGGRAPH Asia (Nov. 2017), 12 pages

Laurent Belcour, Ling-Qi Yan, Ravi Ramamoorthi, Derek Nowrouzezahrai. “Antialiasing Complex Global Illumination Effects in Path-space”. ACM Transactions on Graphics (Aug. 2017), 13 pages

Cyril Soler, Kartic Subr and Derek Nowrouzezahrai. “The BRDF Manifold”. Eurographics - Computer Graphics Journal (Dec. 2017), 12 pages

Binh-Son Hua, Adrien Gruson, Derek Nowrouzezahrai and Toshiya Hachisuka. “Gradient-Domain Photon Density Estimation”. Eurographics - Computer Graphics Journal (Sept. 2017), 12 pages

Toshiya Hachisuka, Iliyan Georgiev, Wojciech Jarosz, Jaroslav Krivanek, Derek Nowrouzezahrai. “Extended Path Integral Formulation for Volumetric Transportt”. ACM Eurographics Symposium on Rendering (June 2017), 12 pages

Renaud Adrien Dubouchet, Laurent Belcour and Derek Nowrouzezahrai. “Frequency Based Radiance Cache for Rendering Animations”. Eurographics Symposium on Rendering (June 2017), 11 pages

Xiaozhong Chen, Sheldon Andrews, Paul Kry and Derek Nowrouzezahrai. “Ballistic Shadow Art”. CHCSS Graphics Interface (Sept. 2017), 9 pages

Morgan McGuire, Michael Mara, Derek Nowrouzezahrai and David Luebke. “Real-Time Global Illumination using Precomputed Light Field Probes”. ACM Interactive 3D Graphics & Games (I3D) (May. 2017), 12 pages

Weilun Sun, Xin Sun, Nathan Carr, Derek Nowrouzezahrai and Ravi Ramamoorthi. “Gradient-Domain Vertex Connection and Merging”. ACM Eurographics Symposium on Rendering (June 2017), 12 pages

PINEAU, Joelle

M. Ghorbel, J. Pineau, R. Gourdeau, S. Javdani, S. Srinivasa. “A Decision-Theoretic Approach for the Collaborative Control of a Smart Wheelchair”. In. Journal of Social Robotics. pp. 1-15. 2017.

R. Lowe, N. Pow, I.V. Serban, L. Charlin, C-W. Liu J. Pineau. “Training end-to-end dialogue systems with the ubuntu dialogue corpus”. In. Dialogue & Discourse. pp. 31-65. 2017.

A. Emami, J El Youssef, R Rabasa-Lhoret, J Pineau, JR Castle, A Haidar. “Modeling Glucagon Action in Patients with Type 1 Diabetes”. IEEE journal of biomedical and health informatics 21 (4), 1163-1171. 2017.

W. Choi, O. Cyens, T. Chan, M. Schijven, S. Lajoie, M.E. Mancini, P. Dev, L. Fellander-Tsai, M. Ferland, P. Kato, J. Lau, M. Montonaro, J. Pineau, R. Aggarwal. “Engagement and Learning in Simulation: Recommendations of the Simnovate Engaged Learning Domain Group”. BMJ Simulation & Technology Enhanced Learning. 2017

R. Lowe, M. Noseworthy, I.V. Serban, N. Angelard-Gontier, E. Bengio, J. Pineau. “Towards an Automatic Turing Test: Learning to Evaluate Dialogue Responses”. Association for Computational Linguistics (ACL). 2017. Outstanding paper track (1.5% of submissions).

G. Rabusseau, B. Balle, J. Pineau. “Multitask Spectral Learning of Weighted Automata”. Neural Information Processing Systems (NIPS). 2017.

D. Bahdanau, P. Brakel, K. Xu, A. Goyal, R. Lowe, J. Pineau, A. Courville, Y. Bengio. “An Actor-Critic Algorithm for Sequence Prediction”. International Conference on Learning Representations (ICLR). 2017.

I.V. Serban, A. Sordoni, R. Lowe, L. Charlin, J. Pineau, A. Courville, Y. Bengio.“A Hierarchical Latent Variable Encoder-Decoder Model for Generating Dialogues”. Association for the Advancement of Artificial Intelligence (AAAI). 2017.

I.V. Serban, R. Lowe, L. Charlin, J. Pineau. “Generative Deep Neural Networks for Dialogue: A Short Review”. Empirical Methods in Natural Language Processing (EMNLP). 2017.

I.V. Serban, A.G. Ororbia II, J. Pineau, A. Courville. “Piecewise Latent Variables for Neural Variational Text Processing”. Empirical Methods in Natural Language Processing (EMNLP). 2017.

M. Noseworthy, J.C.K. Cheung, J. Pineau. “Predicting Success in Goal-Driven Human-Human Dialogues”. SIGdial Meeting on Discourse and Dialogue (SIGdial). 2017.

H.P. Truong, P. Parthasarathi, J. Pineau. “MACA: A

Modular Architecture for Conversational Agents". SIGdial Meeting on Discourse and Dialogue (SIGDIAL). 2017.

M. Smith, L. Charlin, J. Pineau. "A Sparse Probabilistic Model of User Preference Data". Canadian Conference on Artificial Intelligence (CAIAC). 2017.

E. Bengio, V. Thomas, J. Pineau, D. Precup, Y. Bengio. "Independently Controllable Features" Reinforcement Learning and Decision Making (RLDM). arXiv: 1708.01289. 2017.

I.V. Serban, C. Sankar, M. Germain, S. Zhang, Z. Lin, S. Subramanian, T. Kim, M. Pieper, S. Chandar, N. Ke, S. Rajeswar, A. Brebisson, J.M.R. Sotelo, D. Suhubdy, V. Michalski, A. Nguyen, J. Pineau, Y. Bengio. "A Deep Reinforcement Learning Chatbot (Short Version)". Neural Information Processing Systems (NIPS) Workshop on Conversational AI. 2017.

X. Cao, G. Rabusseau, J. Pineau. "Tensor Regression Networks with various Low-Rank Tensor Approximations. arXiv: 1712.09520. 2017.

A. Goyal, N.R. Ke, A. Lamb, C. Pal, J. Pineau, Y. Bengio. "ACtuAL: Actor-Critic Under Adversarial Learning" arXiv: 1711.04755. 2017.

A. Durand, O-A. Maillard, J. Pineau. "Streaming kernel regression with provably adaptive mean, variance, and regularization" arXiv: 1708.00768. 2017.

SHARF, Inna

Botta, E.M., I. Sharf and A.K. Misra, "Energy and Momentum Analysis of the Deployment Dynamics of Nets in Space," Acta Astronautica, Vol. 140, pp. 554-564, 2017.

Sharf, I., Thomsen, B., Botta, E.M., and A.K. Misra, "Experiments and Simulation of a Net Closing Mechanism for Tether-net Capture of Space Debris," Acta Astronautica, Vol. 139, pp. 332-343, 2017.

Sagnières, L.B.M. and I. Sharf, "Stochastic modeling of hypervelocity impacts in attitude propagation of space debris," Advances in Space Research, Vol. 59, pp. 1128-1143, 2017.

St-Onge, D., P.-Y. Breches, I. Sharf, N. Reeves, I. Rekleitis, P. Abouzakhm, Y. Girdhar, A. Harmat, G. Dudek and P. Giguere. "Control, Localization and Human Interaction with an Autonomous Lighter-than-air Performer," Robotics and Autonomous Systems, Vol. 88, pp. 165-186, 2017.

Botta, E.M., I. Sharf, and A.K. Misra. "Contact Dynamics Modeling and Simulation of Tether Nets for Space-Debris Capture," AIAA Journal of Guidance, Control, and Dynamics, Vol. 40, No. 1, pp. 110-123, 2017.

Botta, E.M., I. Sharf and A.K. Misra, "Simulation of Tether-Nets for Capture of Space Debris and Small Asteroids," 1st IAA Conference on Space Situational Awareness (ICSSA), Orlando, FL, November 2017.

Battiston, A., I. Sharf and M. Nahon, "Attitude estimation for normal flight and collision recovery of a quadrotor UAV," 2017 International Conference on Unmanned Aircraft Systems, ICUAS, pp. 840-849, Miami, US, June 13-16, 2017.

Dicker, G., F. Chui and I. Sharf, "Quadrotor Collision Characterization and Recovery Control," IEEE International Conference on Robotics and Automation, ICRA2017, Singapore, May 29-June 3, 2017.

Sagnières, L.B.M. and I. Sharf, "Uncertainty Characterization of Atmospheric Density Models for Orbit Prediction of Space Debris,"7th European Conference on Space Debris, ESA/ESOC, Darmstadt, Germany, April 2017.

Sagnières, L.B.M. and I. Sharf, "Evolution of Spacecraft Orbital Motion due to Hypervelocity Impacts from Debris and Meteoroids," 7th European Conference on Space Debris, ESA/ESOC, Darmstadt, Germany, April 2017.

Botta, E.M., I. Sharf, A.K. Misra. "Tether-nets for active space debris removal: Effect of the tether on deployment and capture dynamics," 27th AAS/AIAA Space Flight Mechanics Meeting, San Antonio, US, February 2017. pp. 2003-2016.

SIDDIQI, Kaleem

*Tristan Aumentado-Armstrong and Kaleem Siddiqi. (2017). Stochastic Heat Kernel Estimation on Sampled Manifolds. Computer Graphics Forum. 36(5): 131--138.

Kuldeep Kumar, Christian Desrosiers, Kaleem Siddiqi, Olivier Colliot and Matthew Toews. (2017). Fiberprint: A subject fingerprint based on sparse code pooling for white matter fiber analysis. NeuroImage. 158: 242-259.

Suinesiaputra A, *Ablin P , Alba X , Alessandrini M, Allen J , Bai W, Cimen S, Claes P, Cowan BR, D'hooge J, Duchateau N, Ehrhardt J, Frangi AF, Gooya A, Grau V, Lekadir K, Lu A, Mukhopadhyay A, Oksuz I , Parajali N, Pennec X, Pereanez M, Pinto C, Piras P, Rohe MM, Rueckert D, Saring D, Sermesant M, Siddiqi K, Tabassian M, Teresi L, Tsaftaris SA, Wilms M, Young AA, Zhang X, Medrano-Gracia P. (2017). Statistical shape modeling of the left ventricle: myocardial infarct classification challenge. IEEE Journal of Biomedical and Health Informatics. DOI: 10.1109/JHBI.2017.2652449

*Babak Samari and *Tristan Aumentado-Armstrong and Gustav J. Strijkers and Martijn Froeling and Kaleem Siddiqi. (2017). Denoising Moving Heart Wall Fibers Using Cartan Frames. In Medical Image Computing and Computer Assisted Intervention (MICCAI), Quebec City, Quebec, Canada, September 2017.

*Wang, Chu and Pelillo, Marcello and Siddiqi, Kaleem. (2017). Dominant Set Clustering and Pooling for Multi-View 3D Object Recognition. In British Machine Vision Conference, Imperial College, London, United Kingdom, September 2017.

*Babak Samari and *Tristan Aumentado-Armstrong and Gustav J. Strijkers and Martijn Froeling and Kaleem Siddiqi. (2017). Cartan Frames for Heart Wall Fiber Motion. In Functional Imaging and Modeling of the Heart (FIMH), Toronto, Canada, June 2017.

Hong, Sungmin and Fishbaugh, James and *Rezanejad, Morteza and Siddiqi, Kaleem and Johnson, Hans and Paulsen, Jane and Kim, Eun Young and Gerig, Guido. (2017). Subject-Specific Longitudinal Shape Analysis by Coupling Spatiotemporal Shape Modeling with Medial Analysis. SPIE Medical Imaging Conference, Houston, United States (101331A--101331A)

John Wilder and *Morteza Rezanejad and Sven Dickinson and Allan Jepson and Kaleem Siddiqi and Dirk Bernhardt-Walther. (2017). The Perceptual Advantage of Symmetry for Scene Perception. In Vision Sciences Society Conference (VSS), St. Pete Beach, United States

John Wilder and *Morteza Rezanejad and Sven Dickinson and Allan Jepson and Kaleem Siddiqi and Dirk Bernhardt-Walther. (2017). The role of symmetry in scene categorization of human observers. In Computational and Mathematical Models in Vision (MODVIS), St. Pete Beach, United States

*Morteza Rezanejad and John Wilder and Sven Dickinson and Allan Jepson and Dirk Bernhardt-Walther and Kaleem Siddiqi. (2017). Scoring Scene Symmetry. In Computational and Mathematical Models in Vision (MODVIS), St. Pete Beach, United States

Kuldeep Kumar, Christian Desrosiers, Kaleem Siddiqi, Olivier Colliot and Matthew Toews. Fiberprint: Identifying subjects and twins using fiber geometry based brain fingerprint. In Medical Imaging Meets NIPS Workshop, Long Beach, CA, USA. December 2017.

INVITED LECTURES

ARBEL, Tal

“Detection and Segmentation of Multiple Sclerosis Lesions in Multi-centre, Multi-scanner Clinical Trial Datasets”, Workshop on Brain Lesions held in conjunction with the 2017 Conference on Medical Image Computing Computer Aided Intervention (MICCAI), Quebec City, Quebec, Canada, September 2017.

“Machine Learning Tools for Medical Image Analysis in Multiple Sclerosis”, Multiple Sclerosis (MS) Xchange Conference (MS Xchange 2017), Montreal, Quebec, Canada, November 2017.

“Probabilistic Machine Learning for Lesion and Tumour Detection, Segmentation and Disease Prediction in Patient Brain Images”, First Montreal Artificial Intelligence and Neuroscience Conference (MAIN 2017), Montreal, Quebec, Canada, November 2017.

“Probabilistic Machine Learning for Lesion and Tumour Detection, Segmentation and Disease Prediction in Patient Brain Images”, NSERC CREATE-MIA, McGill University, Montreal, Quebec, Canada, Dec. 2017.

“Probabilistic Machine Learning for Brain Image Analysis”, Human Healthy Brain for Healthy Lives (HBHL) Neuroinformatics workshop, Montreal Neurological Institute, August 2017.

CAINES, Peter

Concordia University, Montreal Colloquium, 10 March 2017. Colloquium talk “Mean Field Games: An Overview”.

GERAD: Group for Research in Decision Analysis (joint university research centre): University of Montreal, 2 May 2017. Colloquium Talk

Mean Field Games and Related Topics Conference No. 4, Rome (The main biannual MFG meeting.).14 - 16 June 2017. Principal one hour talk.

Hong Kong City University-South China University of Technology Workshop on Estimation, Control and Mean Field Games, 22-23 Jun 2017. Two principal one hour talks.

Fields Institute Workshop on Stochastic Processes and their Applications, Carleton University, Ottawa, 9 - 11 August, 2017. Principal one hour talk.

Institute of Pure and Applied Mathematics (IPAM) Workshop on Mean Field Games, University of California at Los Angeles (UCLA), 30 August -1 September 2017. Two principal one hour talks.

University of Toronto, Department of Statistical Sciences, 6 October 2017. Research seminar/colloquium talk.

CLARK, James

Invited lecture at the “Smart Cities and Mobility Workshop”, held at the Ecole Polytechnique in June 2017

Presented the ICCV Montreal 2021 bid at the 2017 ICCV conference in Venice Italy, October 2017

COOPERSTOCK, Jeremy

Canadian National Institute for the Blind’s TechnoVision+ Conference, Montreal, May 5, 2017

FERRIE, Frank

Ferrie, Frank P., Virtual Observers and Situational Awareness, 14th Conference on Computer and Robot Vision, Edmonton, Alberta May 17-19, 2017.

FORBES, James Richard

J. R. Forbes, “Extremum-Seeking Guidance on the Special Orthogonal Group,” Aerial Robotics International Research Symposium, Centre for Aerial Robotics Research and Education (CARRE), Toronto, ON, June 21-22, 2017. Invited Speaker.

J. R. Forbes, “Guidance on SO(3) Using a Kalman Filter,” Tutorial Session “Vision-based Navigation and Perception for Space Systems”, American Control Conference, Seattle, WA, USA, May 24-26, 2017. Invited Speaker.

R. J. Caverly and J. R. Forbes, “Controller Design for Regional Pole and Zero Placement using Linear Matrix Inequalities and the Modified Minimum Gain Lemma,” Optimization Days 2017, HEC Montreal, May 8-10, 2017.

A. Walsh and J. R. Forbes, “Extremum-Seeking Guidance on SO(3) Using a Kalman Filter,” Optimization Days 2017, HEC Montreal, May 8-10, 2017.

D. Qian and J. R. Forbes, “Exploiting landmark Constraints for Mobile robot Localization and Mapping,” Optimization Days 2017, HEC Montreal, May 8-10, 2017.

J.R. Forbes,“So,you want to be a Professor,eh?,”Mech Talks, MAME, McGill University, Montreal, QC, April 4, 2017.

R. J. Caverly and J. R. Forbes, “Robust Controller Design using the Large Gain Theorem,” GERAD Student Day, HEC Montreal, QC, April 11, 2017.

D. Qian and J. Forbes, “Pose Estimation Using a Novel Computer Vision Algorithm,” GAMES Graduate Research Day, McGill University, Montreal, QC, March 8, 2017. Awarded Second Place in the Oral Presentation Section.

R. J. Caverly and J. Forbes, “Dynamics, Estimation, and Control Lab Research Overview,” McGill Association of Mechanical Engineers (MAME) Mech Lab Tour, McGill University, Montreal, QC, January 23, 2017.

KOVECSES, Jozsef

Kövecses, J.: “Dynamics Modelling and Simulation: Perspectives and Algorithms” presented at the Budapest University of Technology and Economics, March 3, 2017.

Kövecses, J.: “Dynamics Modelling and Simulation of Mechanical Systems: Perspectives and Algorithms”, 2017 Honorary Professor’s Talk, Obuda University, Budapest, September 5, 2017.

Kövecses, J.: “Dynamics Simulation of Mechanical Systems: Models, Algorithms, and Challenges”, invited presentation at the Sixth Symposium of the European Network for Nonsmooth Dynamics, Eindhoven University of Technology, The Netherlands, September 6, 2016.

Kövecses, J.: “Dynamics Modelling, Analysis, and Simulation of Mechanical Systems”, presented at INRIA Grenoble Rhone-Alpes, France, October 19, 2017.

Kövecses, J. : series of invited lectures on Dynamics of Mechanical Systems at the Universidad Panamericana in Mexico City, June 5-14, 2017.

KRY, Paul

Stable Constrained Dynamics, 8 February 2017, Bellairs Workshop on Computer Animation, Barbados (self invited)

Balancing Speed and Fidelity in Physics Based Animation, 10 April 2017, Visual Computing Conference, KAUST, Saudi Arabia.

Creation via computation: New tools for video, art, and animation, 30 June 2017, Beijing Film Academy Innovation Center, Beijing, China.

Physics Based Computer Animation Fundamentals, 12 July 2017, SDU IRC Visual Computing Summer School, QingDao, China.

Physics Based Computer Animation Fundamentals, 7 July 2017, Summer School at University of Science and Technology of China, Hefei, China.

Fundamentals of Computer Animation for Surgery Simulation, 17 November 2017, CREATE-MIA, McGill, Montreal, Canada.

Running in style, staying balanced, and getting a grip in simulated control, 13 November 2017, Sensori-Motor Control of Animals and Robots Workshop, Mathematical Biosciences Institute, Ohio State University, USA.

Fast and Stable Constraints for Multi-body Dynamics, 7 December 2017, IMAGINE Seminar, INRIA Rhone-Alpes, France

LANGER, Michael

“Depth Perception in 3D Clutter” Invited Symposium talk at the CRV conference in Edmonton in May 2017

MAHAJAN, Aditya

“Fundamental limits of remote estimation”, BLISS Seminar, UC Berkeley, CA, Mar 2017.

“When to observe a Markov process”, INFORMS Applied Probability Society Conference, Evanston, IL, July, 2017.

“Mean-field teams”, University of Michigan, Ann Arbor, MI, Jul 2017.

“Decentralized Kalman Filtering”, Fields Institute Workshop on Stochastic Processes and their Applications, Carleton University, Ottawa, ON, Aug 2017

MEGER, David

Mobile robotics in Quebec. Invited talk and panelist at the Quebec Day in Pittsburgh at Carnegie Melon University Roberts Engineering Hall, organized by the Quebec Ministry of Economy, Science and Innovation, March 2017

NAHON, Meyer

‘Dynamics and Control of Agile Fixed-Wing Unmanned Aerial Vehicles’, U of Sherbrooke Createk, Sherbrooke, QC, May 15 2017

‘Dynamics and Control of Agile Fixed-Wing Unmanned Aerial Vehicles’, Harvard Agile Robotics Lab, Cambridge, Mass, March 31 2017

‘Dynamics and Control of Agile Fixed-Wing Unmanned Aerial Vehicles’, Altaeros Lunch & Learn, Somersville, Mass, March 22 2017

NOWROUZEZAHRAI, Derek

Keynote speaker at the CHCSS Graphics Interface conference, where I presented a talk on my research program, entitled “Rendering and the Science of Bringing VR from Virtual to Reality”.

Dartmouth College (hosted by Professors Hany Farid and Wojciech Jarosz) to present a research talk entitled “Filtering in Modern Graphics: Thinking Outside the Pixel”.

Prepared and delivered a single-day lecture on Monte Carlo integration techniques at Ubisoft Montreal’s studio

PINEAU, Joelle

Jan 23 2017 Building End-To-End Dialogue Systems Using Deep Neural Architectures. Toyota Technology Institute, University of Chicago. Chicago, USA

Feb 9 2017 Expert presentation for the Senate’s Study on the role of robotics, 3D printing and artificial intelligence in the healthcare system. Senate Committee on Social Affairs, Science and Technology. Ottawa, Canada.

Feb 17 2017 Building End-To-End Dialogue Systems Using Deep Neural Architectures. McGill Statistics Seminar Series. Montreal, Canada.

Feb 27 2017 Building End-To-End Dialogue Systems Using Deep Neural Architectures. Microsoft Research Lab. New York, USA.

Mar 3 2017 Improving Personalized Treatment Strategies through Artificial Intelligence. McGill Faculty of Medicine guest lecture. Montreal, Canada.

Mar 14 2017 Deep Reinforcement Learning. McGill CSUS Pi Day event. Montreal, Canada.

May 10 2017 Reinforcement Learning: basic concepts. NextAI course on Reinforcement Learning, Toronto, Canada.

May 11 2017 Improving Personalized Treatment Strategies through Artificial Intelligence. NY Data Science Speaker Series. New York, USA.

June 11 2017 Reinforcement Learning: From basic concepts to deep Q-networks. RLDM Conference Tutorial.

July 3 2017 Reinforcement Learning: basic concepts. CIFAR Reinforcement Learning Summer School. Montreal, Canada.

Aug 10 2017 Generative Dialogue Models. ICML workshop on Learning to Generate Natural Language. Stockholm, Sweden.

Aug 10 2017 Evaluating Generative Dialogue Models. ICML workshop on Machine Learning in Speech and Language Processing. Stockholm, Sweden.

Aug 11 2017 A few modest insights from my lifelong learning. ICML workshop on Lifelong Learning. Stockholm, Sweden.

Aug 23 2017 Improving Health-Care through AI. IJCAI Keynote Talk. Melbourne, Australia.

Sep 7 2017 Automatic Evaluation of Chatbots. Botness Montreal. Montreal, Canada.

Oct 23 2017 Canadas Artificial Intelligence Revolution. CIFAR Massey Lecture. Toronto, Canada.

Nov 2 2017 Panel on Algorithmic Accountability Forum on AI responsable. Montreal, Canada.

Nov 7 2017 Panel on Sex, gender and diversity Gender Summit 11. Montreal, Canada.

Nov 3 2017 Improving health-care through AI Canadian Women in Computer Science (Can-CWIC). Montreal, Canada.

Nov 19 2017 Adaptive treatment of epilepsy via reinforcement learning. Montreal Artificial Intelligence & Neuroscience. Montreal, Canada.

Nov 30 2017 La revolution de lintelligence artificielle. RISQ annual meeting. Montreal, Canada.

Dec 3 2017 Reproducibility in Deep Learning and Reinforcement Learning. Annual meeting of the CIFAR program on Learning in Machines & Brains. Toronto, Canada.

Dec 7 2017 Improving health-care through AI. NIPS Workshop on Women in Machine Learning. Long Beach, U.S.A

Dec 7 2017 Reproducibility in Deep Learning and Reinforcement Learning. NIPS Deep RL Symposium. Long Beach, U.S.A

Dec 8 2017 Ethical and Social Challenges in Data-Driven Dialogue Systems. NIPS workshop on Conversational AI. Long Beach, U.S.A

Dec 15 2017 Entrainement et valuation des systmes de dialogue intelligents. Laval University. Laval, U.S.A

Dec 12 2017 Canadas Artificial Intelligence Revolution. The Government of Canadas Data Conference. Ottawa, Canada.

SHARF, Inna

“Towards Greater Autonomy and Safety of UAVs”, Boston University, invited speaker, Robotics seminars, Boston, May 19, 2017.

“Self-Driving Cars”, presenter, leader and moderator of Birds of Feather session at NCFRN Field Trials, Ottawa, May 2017.

“Towards Greater Autonomy and Safety of UAVs: Recovering from Collisions”, invited speaker at the Applied Mechanics Colloquium , SEAS, Harvard, Boston, Feb. 1, 2017.

“UAV Research at McGill”, invited presentation at SkyX Systems Corp., Markham, Ontario, Feb. 13, 2017

SIDDIQI, Kaleem

From Mechanics to Electrical Conduction: Why are Heart Wall Myofibers Helicoidal? Keynote talk at the Statistical Analysis and Computational Modeling of the Heart (STACOM) workshop, September 2017, Quebec City (http://stacom2017.cardiacatlas.org/)

Dominant Set Clustering and Pooling for Multi-View 3D Object Recognition. Invited talk at the Simons Centre for the Study of Living Machines, National Centre for Biological Sciences, Bangalore, India, August, 2017.

From Mechanics to Electrical Conduction: Why are Heart Wall Myofibers Helicoidal? Invited talk at the Institute for Stem Cell Biology and Regenerative Medicine, National Centre for Biological Sciences, Bangalore, India, August 2017

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