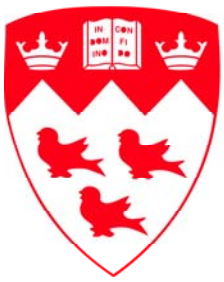

McGill

Centre for Intelligent Machines

ANNUAL REPORT 2007-2008

Professor Benoit Boulet
Director

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DIRECTOR'S REMARKS

It has been an exciting year at CIM, rich in new collaborations, especially in the biomedical area. CIM has two new associate members that are prominent researchers in the McGill Brain Imaging Centre, Dr. Bruce Pike and Dr. Louis Collins. These two researchers collaborate with CIM members Drs. Tal Arbel and Kaleem Siddiqi. These teams were awarded important FQRNT and NSERC grants to study MRI brain image processing to diagnose and evaluate the effect of disease. Speaking of the brain, the ultimate intelligent machine, Professor Sam Musallam has joined CIM as an associate member. Dr. Musallam collaborates with Professor Frank Ferrie of CIM to study brain-machine interfaces, an exciting research that has the ultimate potential of helping handicapped patients recover functionality through the use of intelligent prosthetics. Dr. Xu Liu has also joined CIM as associate member. His research on real-time embedded systems, Internet technology, feedback control of computing systems, fault tolerance, and sensor networks will enhance CIM's expertise in these areas.

Again this year, CIM researchers have produced high quality research published in a variety of top international journals and conferences. For this, some have won awards or have been given higher professional status and have attracted media attention. Our graduate students continue to make us proud by winning top scholarships, best paper awards and various research prizes. They also participate in special training programs such as Expedition Delta to the Mars Desert Research Station. A number of undergraduate students either work at CIM or seek advice from CIM members for their capstone design projects or for design competitions such as the Space Elevator Team. CIM has a long history of mentoring undergraduate students who represent a great talent pool for recruiting graduate students in our centre.

One of our goals for the near future is to increase the interactions between CIM and industry in order to give our students the chance to work on research contracts and get more opportunities when they graduate. One way that we will increase interaction with industry is through the newly established CIM Summer School which is a set of short courses for professionals on topics such as process control, machine vision and mechanical design.

On the funding side, a significant cross-section of CIM members participate in REPARTI, an FQRNT regroupement stratégique. REPARTI is core to our operations and Prof. Frank Ferrie is its co-director. Take for example the joint CIM-REPARTI seminar series on artificial perception that has been very active and successful, thanks to the efforts of CIM Manager Marlene Gray. CIM's smooth operations are ensured by a dedicated staff including Marlene, Systems Manager Jan Binder, Systems Administrator Patrick McLean and secretary Cynthia Davidson.

Last but not least, I tip my hat to Prof. Greg Dudek, who was CIM Director for the last three years. Under his leadership, Greg was able to bring everyone together to ensure that CIM remain both relevant and viable and to maintain its stature as one of the world's top research centres in intelligent systems.

I look forward to an exciting new year at CIM!

Benoit Boulet, Ph.D., P.Eng.
Director, Centre for Intelligent Machines

BACKGROUND SUMMARY

Mission
The Centre for Intelligent Machines (CIM) supports graduate research, teaching and applications of intelligent systems. This dynamic community of scientists, engineers and designers seek to bridge science and innovation. Their novel ideas bring solutions to some of the most challenging problems of the 21st century.

Established in 1985
CIM was formed in 1985 as the McGill Research Centre for Intelligent Machines (McRCIM). At that time, it reported to the Dean of the Faculty of Engineering and the Vice-Principal Graduate Studies and Research. Members from the Department of Electrical Engineering, the Department of Mechanical Engineering, the Department of Biomedical Engineering, the Department of Mining and Materials Engineering and the School of Computer Science contributed to the Centre's early formation.

As of 2008
Today, the Centre is comprised of 28 faculty members and associate members, about 135 graduate and honors-undergraduate students, post-doctoral fellows and visitors and 13 topical laboratories. The Centre for Intelligent Machines (CIM) currently spans 2 faculties with members from the Departments of Electrical and Computer Engineering, Mechanical Engineering and the School of Computer Science. It also has associate members and collaborators in related disciplines, such as the Montreal Neurological Institute, and other universities both within Québec and Canada.

Research Objectives
Our fundamental research objectives and philosophy have remained the same for over 20 years – to push forward the boundaries of intelligent systems through scientific discovery and to educate new generations of students to apply this knowledge to the development of technologies that address the complex needs of modern society.

Research Themes
The main research themes within the Centre are:

- Artificial perception
- Robotics
- Systems and control
- Human-Machine interfaces

Interactive Environment
The operation of the Centre is driven by our collective needs with an eye towards synergy and economies of scale. Resources are fully shared among all users in the CIM community. This open, collaborative environment encourages academic debate and the free exchange of ideas.

Academic Recruitment
CIM's global reputation as a dynamic and multidisciplinary research environment has attracted the interest of many top scientists. Over the past decade, 12 academic hires in the Faculties of Science and Engineering accepted positions at McGill largely because of the presence of the Centre and the opportunity to interact with CIM members.

Funding Diversity
We have been successful over the years in attracting funding from numerous sources: NSERC, NCE, CFI, FQRNT, DRES, DARPA, Canadian, U.S. and foreign industries. We have used this funding, in part, to support the acquisition of state of the art research facilities.

Physical Resources
The physical resources of CIM comprise about 14,000 sq. ft. in the McConnell Engineering Building on McGill's main campus. This represents a nearly contiguous collection of offices, laboratories, a small meeting room and space dedicated to house an extensive information system. This proximity creates a working community where we naturally and regularly meet and interact with each other.

Laboratories
Our diverse research culture is home to 13 interdisciplinary laboratories specializing in the areas of:

- Robotics
- Mechatronics
- Aerospace
- Systems and Control
- Haptics
- Vision
- Medical Imaging
- Shared Reality

RESEARCH HIGHLIGHTS

NEW ASSOCIATE MEMBERS

In 2007-08, members of the Centre for Intelligent Machines (CIM) invited 3 exceptional researchers from the Faculty the Medicine to join the Centre as associate members. Dr. Bruce Pike and Dr. Louis Collins have a successful history of collaborations with many CIM members. The Brain Imaging Centre (BIC) is a rich multi-disciplinary learning environment with members spanning neuropsychology, psychiatry, anatomy, physiology, physiology, neurology, neurosurgery, mathematics, statistics, computer science, computer engineering, electrical engineering and physics. Dr. Sam Musallam, faculty member of the Department of Electrical and Computer Engineering and associate member of the Department of Physiology, is the Canada Research Chair in Bioengineering. These renowned researchers will produce outstanding new collaborations with CIM members in science and engineering and will provide exciting opportunities for training graduate students.

DR. BRUCE PIKE

It is an honour to welcome Gilbert Bruce Pike, PhD, Director, McConnell Brain Imaging Centre of the Montreal Neurological Institute to our CIM community as an Associate Member. Dr. Pike has a long and established history with our Centre, collaborating with CIM Faculty member Prof. Kaleem Siddiqi on numerous publications, co-supervised students and grants.

Dr. Bruce Pike is Killam Professor of Neurology and Neurosurgery, James McGill Professor of Biomedical Engineering and one of the Chercheurs Nationaux of the Fonds de la recherche en santé du Québec. Dr. Pike investigates magnetic resonance imaging methods and applications for basic and clinical neuroscience research. As his primary focus, he detects and measures the physiological modulations that are associated with fluctuations in neuronal activity using functional MRI. Functional MRI can detect changes in blood oxygenation and tissue perfusion with a high temporal and spatial resolution. It also provides a powerful tool for studying basic brain physiology in healthy subjects and pathophysiology in diseases such as stroke and Alzheimer's Disease.

Recently, Dr. Pike used his novel functional MRI methods to determine for the first time the relationship between regional cerebral blood flow and oxygen consumption in the cortex over a broad range of activation and inhibition conditions in both healthy subjects and epilepsy patients. Dr. Pike has also developed a quantitative MRI technique termed magnetization transfer (MT) imaging that probes the magnetic interaction between macromolecules and water of brain tissue. Using MT imaging, his group has revealed focal pathology in a group of multiple sclerosis patients that precedes the development of conventional MRI detected MS lesions by up to two years.

DR. LOUIS COLLINS

We are extremely pleased to announce the addition of Louis Collins, PhD, Faculty member of the Brain Imaging Centre (BIC) of the Montreal Neurological Institute, to our Associate Membership affiliates of CIM.

Dr. Collins has collaborated extensively over the years with CIM Faculty members Professor Tal Arbel (ECE) and Professor Kaleem Siddiqi (SOCS) on research related to image guided neurosurgery. Dr. Collins and his group develop computerized image processing techniques such as non-linear image registration, model-based segmentation and appearance-based segmentation to automatically identify, quantify and characterize structures within the human brain. These techniques are applied to large databases of magnetic resonance (MR), computed tomography (CT) and ultrasound (US) data from normal subjects to quantify anatomical variability

and to characterize the morphological changes associated with the disease. The data derived can be used for diagnosis and prognosis and to help study natural history of disease and to improve understanding of disease pathology. In image-guided neurosurgery (IGNS), these techniques provide the surgeon with computerized tools to assist in integrating and interpreting anatomical, functional and vascular imaging data, permitting the effective planning and execution of minimally invasive neurosurgical procedures. These techniques are applied in image guided neurosurgery and disease diagnosis, prognosis and quantification for diseases such as multiple sclerosis, epilepsy, schizophrenia and degenerative diseases such as Alzheimer's dementia.

Dr. Collins is an Associate Professor in the Department of Neurology and Neurosurgery and the Department of Biomedical Engineering, and the Director of the Image Processing Lab of the MNI. His work is highly collaborative in nature, and has resulted in several projects and co-supervised students with Professors Arbel and Siddiqi at CIM.

DR. SAM MUSALLAM

As Director of McGill's Neural Prosthetics Laboratory, and Canada Research Chair in Bioengineering, Professor Sam Musallam works in the esoteric, cutting-edge field of mind/computer interfaces and robotic prosthetic limbs. Professor Musallam joined McGill in December 2006 as Assistant Professor in the Department of Electrical and Computer Engineering and an Associate Member of the Department of Physiology at the Faculty of Medicine, two fields which in the past have been separated by miles of cross-disciplinary no-man's-land. A graduate of the University of Toronto with an undergraduate degree in physics and a PhD in neuroscience, he later spent time at the famous Anderson Lab at the California Institute of Technology as a post-doctoral fellow, where he began his research into mind/computer interfaces.

Professor Musallam’s research combines neuroscience and electrical engineering for the development of a Brain-machine interfaces (BMIs). His research topics include: a) investigation of movement variables encoded by neurons and the signal processing that occurs in the parietal and premotor cortices when planning or executing reaches, b) the study of how neurons encode reaches to targets anywhere in space (both static and moving), c) optimal decoding algorithms d) multi-electrode array development, e), the development of electronics for BMI applications, f) the development of sensors for biological measurements.

Using neurophysiology, Dr. Sam Musallam studies brain areas that generate movements to find the signals that could operate external devices, as well as the tasks that a specific brain signal could control. His goal is to harness different brain signals to operate different devices—very accurately and regardless of distractions.

Dr. XUE LIU

A fourth outstanding associate member was accepted into CIM over the past year. Professor Xue Liu's research interests are in computer systems and networking, with special focus on real-time and embedded systems, Internet technology, feedback control of computing systems, fault tolerance, and sensor networks. During the past year, he has published more than 20 research papers in international journals and major peer-reviewed conferences. Professor Liu is an assistant professor in the School of Computer Science.

OUTSTANDING SCIENTIFIC CONTRIBUTIONS

CIM SCIENCE in the NEWS

The "New Scientist" magazine has posted an article about CIM member **Professor James Clark**, Director of the Visual Motor Systems Lab, and his PhD candidate **Li Jie,** on its website

http://technology.newscientist.com/article/dn13264-eyetracking-game-hides-baddies-in-plain-view.html

Professor Clark and Ji Lie have designed a novel way to think about designing games to control how players notice enemies and other features.

The article is reproduced below.

Eye-tracking game hides baddies in plain view

The Greatest Minds of Our Time

A fiendishly difficult video game that tracks a player's eyes to make enemies appear where a player is least likely to see them has been developed by Canadian researchers.

They designed the game to test ideas about how eye movements betray where our attention is focused.

"We could make it harder if we presented important game-related items where we didn't think people were paying attention," says James J Clark, a computer vision researcher at McGill University in Montreal.

That approach means players cannot learn to expect baddies in particular locations. They always appear in the area of the screen a gamer is least aware of.

Fixed focus

It is easy to track eye movements using small cameras that follow the movement of a person's pupils. But Clark and colleague Li Jie knew that the place someone's eyes are pointing at is not always the place they are most aware of.

To learn how to predict where a person's attention was focused, the pair tested subjects' reactions to an image suddenly appearing on the computer screen under different circumstances.

The experiments showed two things. First, when someone is looking at a fixed point in a complex part of a scene, they find it harder to divert their attention to a new object. Second, the researchers confirmed previous research suggesting that when looking at a moving object, people tend to focus their attention slightly ahead of it.

Those results were used to design a first-person shoot 'em up game that could choose to make enemies appear in places where they would be either easy or hard to see. The game tracks a player's eyes to work out areas they are paying most, and least, attention to.
Helicopter rescue

Gamers had to avoid missiles, fireballs, and other enemy objects, while trying to shoot an opponent. When enemies were placed away from a player's area of focus, scores went down significantly.

The research could be used to design harder video games, says Clark, especially if games eventually come packaged with eye tracking devices. Some games companies are already investigating using them as a way of controlling games.

Even without eye-tracking, the work demonstrates a new way to think about designing games to control how players notice enemies and other features.

But Clark adds his main interest is in using the attention technique to make things easier, not harder. For example, head-up displays for helicopter rescue pilots that would put vital information in easy-to-see places and less important information where it wouldn't be distracting, he says.

"That's a good one," says Ronald Rensink, a vision researcher at the University of British Columbia, Vancouver, Canada. "I've been talking about this as a possible approach. It's good to see someone has made it happen. If you can predict attention, you can improve performance."

A paper on the McGill research will appear in a future edition of ACM Transactions on Multimedia Computing, Communications, and Applications.

CIM RESEARCHERS AND THE MONTREAL NEUROLOGICAL INSTITUTE

Professor Kaleem Siddiqi, Director of the Shape Analysis Group of CIM, has been granted an FQRNT Team Grant with associate members **Dr. Bruce Pike** and **Dr. Louis Collins,** of the Brain Imaging Centre of the Montreal Neurological Institute. The project involves several aspects of medical imaging. It explores the application of notions from Computer Vision and Perceptual Organisations to the problem of modeling biological tissue structure in diffusion MRI data. The project also examines a three-dimensional (3D) representation of vasculature in the brain, which is extremely important in image- guided neurosurgery, pre-preparation planning and clinical analysis. Finally, the project also explores the volumetric shape analysis of anatomical structures in the brain. At least one postdoctoral fellow and 2 PhD students will work on this project. The studies will be conducted jointly in the Computation, Visualization and Realization Laboratory of the Centre for Intelligent Machines (CIM) and the Brain Imaging Centre (BIC) of the MNI.

Professor Tal Arbel, Director of the Probabilistic Vision Group, is co-collaborator with **Prof. D. Louis Collins** of the MNI on an NSERC Strategic grant to study Multiple Sclerosis. This project also has collaborative links with *NeuroRx Research*, a company facilitating drug trials for the Pharmaceutical industry founded by **Dr. Doug Arnold** from **MNI/H**.The group is currently investigating various markers that can improve the understanding of MS from Medical Imaging perspective. The goal is to be able to automatically identify MS lesions from patients' Magnetic Resonance Images (MRIs). The group has been investigating various areas including: the importance of regional information in studying the lesion behavior and effects of approaches to intensity normalization on the images. Researchers also plan to seek innovative solutions by incorporating approaches such as Markov Random Fields. This will allow the researchers to study various data modalities and new MS atlas that can provide insights into general behavioral traits of the disease. The team has analyzed the effects of regional information in conjunction with a bayesian learning approach and has obtained encouraging results. **Dr. Mohak Shah** has been recently recruited as a Post-doctoral fellow under the cosupervision of Professors Arbel and Collins. His expertise will enable the group to apply ideas and validation techniques from the machine learning field to complement its computer vision and medical imaging expertise. Several new PhD and honors students are scheduled to join the group from Summer/Fall 2008.

INNOVATION IN MECHANICAL ENGINEERING AND ARCHITECTURE

Professor Jorge Angeles, Director of the Robotic Mechanical Systems Laboratory and founding member of CIM, has teamed up with Professor Peter Sijpkes of the School of Architecture. "The New Architecture of Phase Change: Computer Assisted Ice Construction" is a three year $173.000 research project funded by SSHRC. Professor Sijpkes has experimented with various methods of ice construction at McGill since his student days in the early 70's, and continued to do so after he became a staff member.

A meeting with Professor Angeles in the framework of the work of the "Design for Extreme Environments" Team (created under the auspices of the NSERC Design Engineering Chair) led to the successful application for funding from the SSHRC innovation/ research fund. Associate researchers on the project are David Theodore and Tom Balaban, both sessional lecturers at the School of Architecture.

The project aims to do research at three different scales. The first scale limits itself to the 'wine glass' dimension. A 'Fab@Home' rapid prototyping machine was assembled from a store-bought kit by an UG student team in the summer of 2007, placed in a freezer and tuned to operate at -22 degrees C. Working with this set-up, much experience was gained in understanding basic phenomena such as the thermodynamics of freezing, the influence of surface tension on drop formation and modelling accuracy, the effects of thermal expansion and contraction on the performance of the machine and the selection of a proper low-temperature lubricant.

The hypodermic needle water-delivery system that was part of the original Fab@Home kit was replaced with a valve-controlled mechanism, requiring that the water be delivered under carefully controlled pressure. The use of a dual-delivery system allows the simultaneous deposition of liquids, one being water and the other one being brine (with a lower melting temperature than water).This allows the brine part of the object to be used as a scaffold that can be melted away independently from the ice model.

After a year of patient experimental work, led by our CIM Master's student (ME) Eric Barnett, the team now has a reliable method of creating small-scale 3D objects made of ice, including a 'martini glass' that, in looks, can hardly be distinguished from the 'real' thing. Results now equal or even surpass the results from the one competing team in 'rapid ice modelling' at the University of Missouri at Rolla, under Prof. Lui's direction.

The Fab@Home experiments are currently being scaled up to the reach of 60 cm of our Adept Technology COBRA robot. A new freezer has been installed and production of 3D objects a meter or so in plan and 25 cm in depth will be produced soon.

The final scale at which the researchers expect to operate is the architectural scale: full scale ice buildings. For this purpose there are plans to use a larger robot, the "Macro," that was part of a previous research project under Professor Angeles' supervision, and which has been 'repatriated' from NRC's Integrated Manufacturing Institute in London,ON for this purpose. In collaboration with Professor Robert Kok of the Department of Bioresource Engineering in the Faculty of Agricultural and Environmental Sciences at the Macdonald Campus, we expect to operate this robot in the winter of 2010 to manufacture large-scale architectural ice structures. This work is of interest to the 'winter recreational industry' such as winter festivals (Ottawa's Winterlude, Montreal's Festival des Neiges,Quebec's Carnaval) and may also be of value in extreme arctic or extra-terrestial environments. Students of the School of Architecture have over the last five years participated in the annual "Ice hotel suite competition' organized by the Hotel de Glace outside Quebec City, and the Ice Hotel will be a likely first client for one of our robot-built architectural designs. It is envisaged that at the architectural scale the raw material will not be water but rather a mix of ice and/or snow and water, to facilitate quick bulk-formation of ice.

CIM MEMBERS SUCCESSFUL IN NSERC ACCELERATOR PROGRAM

CIM was well represented in the NSERC Accelerator Program (DAS) in 2007-08. Three out of the eight successful McGill candidates were affiliated with our Centre. Congratulations are extended to CIM members **Professor Meyer Nahon** and **Professor Kaleem Siddiqi,** as well as Associate member **Dr**. **Bruce Pike** of the MNI, for their success in the *NSERC Discovery Accelerator Program*. The objective of the DAS is to provide substantial ($40K/year for 3 years) and timely resources to a small group of outstanding researchers who have a well-established research program and who show strong potential to become international leaders in their respective areas of research. NSERC will award a total of 100 supplements across Canada. In other words, approximately 3% of applicants nationwide receive a supplement. McGill awarded only 8 candidates.

KUDOS TO CIM RESEARCHERS

Professor Gregory Dudek, Director of the Mobile Robotics Laboratory of CIM, has been awarded a James McGill Professorship.

Professor Dudek has also been named an Editor of the prestigious journal IEEE Transactions on Robotics.

Professor Meyer Nahon accepted a position as Associate Dean, Faculty of Graduate Studies at McGill University.

Professor Vincent Hayward, Director of the Haptics Laboratory of CIM, and founding member of CIM over 20 years ago, has been awarded *Fellow of the IEEE - Institute of Electrical and Electronics Engineers*. This award is in recognition of Professor Hayward's extraordinary contribution to engineering and science, particularly in the domain of haptics and the medical and health care sector.

Professor Hayward was an invited speaker to the prestigious Royal Society Lectures in Science. His talk, entitled *Physically and Perceptually Based Haptics,* was held on September 20, 2007 in the Auditorium of Redpath Museum at McGill University.

KUDOS TO OUR CIM STUDENTS

ExDELTA EXPEDITION TO THE MARS DESERT RESEARCH STATION IN UTAH

Michèle Faragalli, Master's student under the supervision of Professor Inna Sharf, was selected to participate in Expedition Delta to the Mars Desert Research Station (MDRS) located in Utah. Michèle worked in the capacity of Surface Exploration Systems (SES) Engineer on the Mars Society Canada's Exploration Delta for two weeks starting February 2, 2008.

The purpose of ExDelta is to certify new recruits for participation in future large-scale research expeditions, to expose researchers to the facilities and environment typically available in a Mars analog setting, and to cross-train participants in several areas including geology, biology, technology and operations as they pertain to human Mars exploration. Michèle was accompanied by an undergraduate student from McGill's Department of Mechanical Engineering, Nasim Kaveh-Moghaddam. They conducted experiments, studied water samples and analyzed gases in the soil that might resemble those found on Mars.

Michèle is currently studying intelligent control of the PAW robot to increase autonomy in rough terrain applications in CIM's Mechatronics Locomotion Laboratory. He is a graduate of the International Space University.

On a value-added note, the Montreal Gazette featured Michèle Faragalli, along with PAW in the Mechatronics Locomotion Lab of CIM, in a full page article on A7, January 31, 2008.

CONGRATULATIONS TO OUR CIM PRECARN SCHOLARSHIP RECIPIENTS

Five of CIM's graduate students, representing computer science, mechanical engineering and electrical and computer engineering, were awarded PRECARN scholarships in 2008.

Carmen Au
PhD Candidate
Supervisor: Professor Jim Clark)
* Image Representation

Michèle Faragalli
Masters of Engineering Candidate
Supervisor: Professor Inna Sharf
* Robotic Controllers

Stéphane Pelletier
PhD Candidate
Supervisor: Professor Jeremy Cooperstock
* Computer Vision

Junaed Sattar
PhD Candidate
Supervisor: Professor Gregory Dudek
* Robotics

Abdul Razzak Selman
PhD Candidate
Supervisors: Professors Vincent Hayward/Hannah Michalska)
*Human Kinematics

CIM PHD CANDIDATE VINCENT LEVESQUE WINS IEEE BEST DEMO AWARD

Our CIM PhD candidate, **Vincent Levesque**, was the winner of the "IEEE Technical Committee on Haptics Best Demonstration Award" at the 16th Symposium on HAPTIC INTERFACES (March 2008). Vincent is supervised by Prof. Vincent Hayward, Director of the Haptics Lab at CIM. The award was given for the demonstration entitled "Refreshable Tactile Graphics with the STReSS2 Laterotactile Display" Vincent Levesque, Andrew H. C. Gosline and Vincent Hayward.

CIM AND THE McGILL ALUMNI ASSOCIATION

The McGill Alma Mater Fund teamed up with **Jérome Pasquero**, PhD candidate with Professor Vincent Hayward, to produce a professional marketing brochure for 2007-08. A photo of Jérome working in the Haptics Laboratory is predominant on the brochure. Also included in the brochure: **Frank Riggi**, MEng candidate featured with his supervisor, Professor Tal Arbel, in the Medical Imaging Laboratory of CIM.

Additionally**, Professor Tal Arbel,** Director of the Probabilistic Vision Group of CIM**,** was featured in the Faculty of Engineering Case for Support in November 2007.
http://www.mcgill.ca/files/campaign/ENG-CaseforSupport.pdf

FORMER CIM STUDENT JULIE PAYETTE RETURNS TO SPACE IN 2009

The Canadian Space Agency (CSA) announced that **Julie Payette**, who pursued studies in a PhD program with Profs. Vincent Hayward (ECE) and Renato DeMori (SOCS) of CIM, will be aboard the space shuttle Endeavour for a mission planned for April 2009.

Julie will serve as a mission specialist on a six-person crew to bring materials to a laboratory on the International Space Station. STS-127 will launch the remaining components of Kibo, an experiment facility built by the Japanese Space Agency (JAXA). The crew will install the Japanese Experiment Module Exposed Facility and Experiment Logistics Module Exposed Section. Once complete, the facility will provide a platform for experiments exposed to the space environment. It comprises external logistics modules, and a pressurized module with a robotic arm attached it that can position experiments outside the Station. Kibo has 10 external payload storage areas. This 15-day mission will include five spacewalks for the crew, whose other members are NASA astronauts Mark L. Polansky, Commander, Douglas G. Hurley, Pilot, Christopher J. Cassidy, Mission Specialist, Thomas, H. Marshburn, Mission Specialist, and David A. Wolf, Mission Specialist.

Julie, who is a native of Montreal, first went to space in 1999 on space shuttle Discovery. On her previous mission, Julie requested that CIM provide a flag that would represent the Centre for Intelligent Machines on board the Discovery. The home-made CIM flag flew on the STS-96 mission and became the focal point for a prestigious talk that was given by Julie at McGill University's Moyse Hall in 2000.

RESEARCH INNOVATION

The following projects are a small sample of the diversity of research activities within CIM during 2007-2008.

- Professor Meyer Nahon and a multidisciplinary group of researchers in the Mobile Mechatronics Laboratory lead the development of the quadrupedal PAW and the amphibious AQUA platforms. In the case of PAW, simulation work is under way to design intelligent controllers for this quadruped to allow it to tune its gait in response to changes in the terrain and to also overcome obstacles. In the case of the AQUA underwater robot, the experimental and simulation-based research addresses the development of stability augmentation systems and high-level controllers to control the robot's motion.

- In the Aerospace Mechatronics Laboratory, under Director Inna Sharf, the latest developments include the installation of the new 6-camera Motion Capture system from Vicon and a recent addition to the existing airships in the lab: the ALTAV vehicle developed by Quanser. The Vicon system will be used to determine the pose of the fully-actuated spherical airship which is used in the laboratory for experiments on autonomous robotic grasping of objects in space (the airship serves the function of an uncooperative satellite).

  The ALTAV airship is an airship that relies on marginal stability and lift and high thrust-to-mass ratio to give it high maneuverability and outdoor capability in a relatively small package. Research is focused on modeling the airship's dynamics and developing controllers, both low-and high-level.

- The Shape Analysis Group, under Director Professor Kaleem Siddiqi's supervision, developed a new differential geometric characterization of 3D streamline flow patterns which occur in computer vision, graphics and medical imaging. These developments were applied to the analysis and modeling of white matter fiber tracts from Diffusion MRI data. In joint work with the Appearance Modelling Group, lead by Professor Michael Langer, new algorithms for depth from defocus and the removal of partial occlusion effects from single images were also developed.

- Director of the Shared Reality Laboratory, Professor Jeremy Cooperstock, and his research group have been working closely with colleagues at the Societé des Arts Technologiques (SAT) to develop a rich, multisensory, immersive environment that includes support for physical modeling and processing of audio sources, graphical representations of sound objects, and live video of distributed participants. This "AudioScape" project is now expanding to support multiple users in a single location, each of whom must be tracked in real-time and provided with an appropriate audio mix based on position and orientation. With colleagues in Music Technology, experiments are underway on the synthesis and perception of different ground surfaces for interactive walking; dubbed "haptic snow", the team has already simulated the haptic and auditory experience of walking on snow.

- The Robotic Mechanical Systems Laboratory of CIM, led by Professor Jorge Angeles, has been working in various fronts: 1) the Schoenflies Motion Generator is a parallel system for the production of motions proper of what is known in the market as SCARA (Selective Compliance Assembly Robot Arm) systems, the intention being to beat the current industrial cycle time of 500 ms boasted by Adept for their serial systems; 2) QUASIMORO is a two-wheeled mobile robot carrying a payload, the challenge here

being to accomplish three independent functions with only three motors, which is being done thanks to a clever nonlinear feedback control algorithm devised by *former PhD student Alessio Salerno*, the applications being multiple, e.g., a waiter for the mobility-challenged, a highly mobile exploring device, and entertainment; and 3) PLATO, a series of multi-axis accelerometers with simplicial architectures (simplicial derives from "simplex," a well-known term in mathematical programming) for accelerometer strapdowns intended for the twist and pose estimation of free-floating bodies.

- Professor Vincent Hayward, Director of the Haptics Laboratory, continued working with the members of his group in Montreal. In the past year, a new type of hybrid force feedback device was designed and implemented whereby the force experienced by the user result both from the activation of electric motors and from newly developed eddy current brakes bringing the simulation fidelity to unprecedented levels. Using this new hardware a theory and method for synthesizing haptics textures were developed. New types of perceptual interactions were discovered, for instance the weight of a vibration object such as a telephone has an effect on the perceived vibrations. Progress was made on the artificial production of tactile sensations both in the rendering of Braille and of tactile graphics. In the past year also several more theoretical results were attained regarding the contributions of the skin mechanics to tactile perception, the discovery of several invariants which seem responsible for the perception of haptic shape.

- Projects in the Systems and Control Group of CIM are focused on learning, adaptation, cooperation, competition and robustness in complex uncertain control systems.

  The work being performed by Professor Benoit Boulet, Director of the Industrial Automation Laboratory of CIM, and his group have advanced the theory of tuned robust controllers for multivariable systems with significant parameter uncertainty together with applications to the automotive and thermo-forming industries. One of the areas of work led by Professor Peter Caines and associates is the study of large populations of competing agents (such as cell phone users in a crowded environment) using stochastic control and game theory concepts to find social equilibria. Other work is focused on the control of hybrid systems where discrete (computer based) and continuous (physics based) phenomena intrinsically intertwined (as for vehicle dynamics and chemical engineering processes). Among other topics, Professor Shie Mannor and his research group are studying adaptive multi-agent network formation, for example as occurs in Internet and ad hoc market applications. This research uses methods from probability theory, game theory, and computer science, as does his work on decision making by sets of agents in environments where they have little or no prior information. Professor Hannah Michalska is working on several projects. In joint robust control studies with other group members, Professor Hannah Michalska is applying large scale stochastic estimation and data fusion methods to problems that arise in detection, security and marine applications.

- The activities of the Fluid Flow Control Group, under the leadership of Professor Luca Cortelezzi, are focused on modeling, optimization and control of unsteady fluid flows with applications to drag reduction, lift enhancement, heat and mass transfer optimization, mixing enhancement and noise inhibition. Particular emphasis is put on the design of reduced-order controllers and the development of realistic sensors and actuators. The final goal is to optimize and redesign currently used devices and develop novel devices for industrial and aeronautical applications.

- The Content-Based Retrieval Group, directed by Professor Martin Levine, studies automated systems for viewing videos or actual time varying 3D scenes and interpreting them to identify certain specific behaviors or objects. Research in this area is classified under the rubrics of object motion detection, object tracking, and object behavior

recognition. These aspects cannot be treated independently and this research application deals with a program aimed at addressing all three topics. To date, the automated surveillance literature has dealt largely with outdoor environments where people are being viewed at a significant distance. By contrast, this group concentrates on relatively confined indoor spaces where perhaps there are a few people in a complex environment, even containing moving objects. The scenes contain people (“objects”) performing certain activities, as well as inanimate objects of interest that must be detected and recorded.

NEW INITIATIVES

UNDERGRADUATES AT CIM

The Centre has an established history of mentoring and teaching undergraduate students in the various labs of CIM. In 2007-2008, members of the Space Elevator Team (MSET) led by **Puneet Mulchandani,** ECE (Computer Engineering) U3, **Alex Gravenstein,** ME, U2/3, and **Cyrus Foster** ME U3 met with the Director and Manager of CIM to discuss the potential for greater interaction and integration into the research interests of CIM.

The McGill Space Elevator Team (MSET) is a design team that is part of the engineering design network at McGill. Their interdisciplinary approach, comprised of undergraduate students from various departments in both engineering and science, is an excellent fit with the research mission of the Centre for Intelligent Machines. Over 30 dedicated undergraduate students work on this project, which involves building an autonomous machine that can climb vertically upwards for a kilometer at a significant speed, powered externally by beaming concentrated laser beams at solar cells on the machine. The MSET compete at the annual NASA-sponsored space elevator games (http://www.spaceward.org/).

CIM's involvement with the MSET had many positive outcomes. **Cyrus Foster**, Team Leader, was accepted as a summer intern in the labs of CIM, under the direction of CIM member **Professor Jozsef Kovecses**. Cyrus will be leaving McGill in September to study under a PhD program at Stanford University (USA). The team met with several of the CIM members, including Professors **Frank Ferrie, Meyer Nahon and Jozsef Kovecses** and was also successful in procuring lab space in theTrottier Building in collaboration with the Department of Electrical and Computer Engineering.

Members of the McGill Space Team were invited to a seminar on February 7, 2008 given by **Dr. Yiannis Rekleitis,** Adjunct Professor**,** is a former PhD student with **Professor Gregory Dudek**, a former post-doc at Carnegie Mellon University and a Fellow at the Canadian Space Agency. The talk was entitled: "Title: "Autonomous Planetary Exploration using Irregular Triangular Mesh".

Dr. Rekleitis also provided one-on-one meetings and ongoing mentoring with team leaders, and arranged for them to meet with Johanne Heald Fellow of the Canadian Space Agancy. Mme Heald is currently researching power beaming systems for satellites. The meeting was held at CIM.

SCIENTIFIC AND FINANCIAL OUTPUT

The Centre for Intelligent Machines is comprised of 19 full time members, 9 associate members and 1 emeritus member. During the year 2007-2008, CIM members Jorge Angeles, Peter Caines, and Gregory Dudek were on sabbatical.

A summary of our membership, student enrolment and scientific output appears below.

- MEMBERSHIP

	Full	Associate	
ECE	**9**	**1**	
ME	**7**	**2**	
SOCS	**3**	**4**	
MNI		**2**	
Total	**19**	**9**	**28**

- STUDENTS

Masters	**36**
PhD	**59**
Post-Docs	**8**
Foreign Visiting	**7**
Undergrad Honors	**20**
Total	**130**

- SCIENTIFIC OUTPUT

Internationally, CIM's presence in the community of researchers in areas related to intelligent systems is prominent. The publication output for 2007-2008 for CIM full members and associate members is indicated below:

	Full	Associate	Total
Refereed articles/journals	**60**	**27**	**87**
Refereed conference proceedings	**88**	**75**	**163**
Books/Chapters	**7**	**1**	**8**
Grand Total	**155**	**103**	**258**

- *A complete list of publications for CIM full members and associates for the past year can be found in the appendices.*

- REVENUE BREAKDOWN:

For the year 2007-2008:

Total annual value of revenue from grant/contracts: **$ 2.5M**

Total annual value NSERC/Industry	**$ 500K**
Total annual value of NSERC Discovery	**$ 740K**
Total annual value of FQRNT	**$ 350K**

The CIM/REPARTI regroupement stratégique, combined with matching funds from the University and the CIM membership, contributed to the Centre's operations to the amount of approx. $250,000 in the year 2007-2008.

Regroupement stratégique pour l'étude des environnements partagés intelligents répartis

reparti

A Strategic Team for the Study of Distributed Intelligent Shared Environments

REPARTI

http://reparti.gel.ulaval.ca/en/REPARTI/index.chtml

Centre REPARTI is an inter-institutional, interdisciplinary collaborative venture between McGill University, represented by the Centre for Intelligent Machines (CIM), and members from Université Laval, Université de Sherbrooke, Ēcole Polytechnique, Université de Montréal and Université du Québec en Outaouais.

REPARTI

http://reparti.gel.ulaval.ca/en/REPARTI/index.chtml

BACKGROUND

Supported by the Quebec government's *Fonds québécois de la recherche sur la nature et les technologies (FQRNT),* this regroupement stratégique builds on several unique historical precedents:

1. The evolution of the FQRNT Network Réseau québécois de recherche en réalité artificielle distribuée (QERRAnet) under the McGill domain (2002-2006) into a research centre in 2006 hosted by Université Laval.
2. The historical and concrete partnership that has developed over a period of 20 years between prominent researchers in this centre as a result of the NSERC National Centres of Excellence program, and the interuniversity-industrial consortium IRIS-Precarn.
3. The long and productive relationship established between the Centre for Intelligent Machines (CIM) and the Quebec government through the former FCAR Centre de recherche programme.

The lead institution in this enterprise is Université Laval under the Directorship of Professor Denis Laurendeau. The McGill node is comprised of 11 members by virtue of their membership in the Centre for Intelligent Machines.

RESEARCH PROGRAM

The research program of REPARTI is composed of three main themes:

- Perception
- Modeling – assessment – learning
- Interaction

OBJECTIVES

The objectives of REPARTI are to: i) conduct advanced research on intelligent environments, ii) improve the quality of life of individuals by reducing the effects of their geographic disparities iii) train highly qualified personnel iv) create opportunities for technology transfer and economic development and v) promote and enhance Quebec's leadership and role in this key technological sector.

Centre REPARTI is part of the REGROUPEMENT STRATEGIQUE program of the Quebec Government's FQRNT. It submits annual reports to the Vice Principal (Research and International Relations) of McGill University. Activities relating to REPARTI can be found at:

http://reparti.gel.ulaval.ca/fr/index.chtml

APPENDICES

FACULTY MEMBERS

Name	Email @cim.mcgill.ca	Phone (514) 398-	Department
Angeles, Jorge	angeles	6315	Mechanical Engineering
Arbel, Tal	arbel	8204	Electrical and Computer Engineering
Boulet, Benoit	boulet	1478	Electrical and Computer Engineering
Caines, Peter	peterc	7129	Electrical and Computer Engineering
Clark, James	clark	2654	Electrical and Computer Engineering
Cooperstock, Jeremy	jer	5992	Electrical and Computer Engineering
Cortelezzi, Luca	crtlz	6299	Mechanical Engineering
Dudek, Gregory	dudek	4325	School of Computer Science
Ferrie, Frank	ferrie	6042	Electrical and Computer Engineering
Hayward, Vincent	hayward	5006	Electrical and Computer Engineering
Kovecses, Jozsef	kovecses	6302	Mechanical Engineering
Langer, Michael	langer	3740	School of Computer Science
Levine, Martin	levine	7115	Electrical and Computer Engineering
Mannor, Shie	shie	1467	Electrical and Computer Engineering
Michalska, Hannah	michalsk	3053	Electrical and Computer Engineering
Nahon, Meyer	mnahon	2383	Mechanical Engineering
Sharf, Inna	isharf	1711	Mechanical Engineering
Siddiqi, Kaleem	siddiqi	3371	School of Computer Science
Zsombor-Murray, Paul	paul	6311	Mechanical Engineering

ASSOCIATE MEMBERS

Name	Email	Phone (514) 398-	Department
Collins, Louis	louis.collinsATmcgill.ca	4227	Neurology Neurosurgery / Biomedical Engineering
Liu, Xue	xueliuATcs.mcgill.ca	1819	School of Computer Science
Misra, Arun	misraATcim.mcgill.ca	6288	Mechanical Engineering
Mongrain, Rosaire	rosaire.mongrainATmcgill.ca	1576	Mechanical Engineering
Musallam, Sam	sam.musallamATmcgill.ca	1702	Electrical and Computer Engineering / Physiology
Panangaden, Prakash	prakashATcs.mcgill.ca	7074	School of Computer Science
Pike, Bruce	bruce.pikeATmcgill.ca	1929	Neurology Neurosurgery / Biomedical Engineering
Pineau, Joelle	jpineauATcs.mcgill.ca	5432	School of Computer Science
Precup, Doina	dprecupATcs.mcgill.ca	6443	School of Computer Science

CIM STUDENTS: HONOURS, AWARDS AND RECOGNITIONS
2007 – 2008

Year	Name	Award	Organisation
2008	Andrew Havens C. Gosline	Best Demo Award: Vincent Levesque, **Andrew H. C. Gosline** and Vincent Hayward: *Tactile Graphics Rendering*	Institute of Electrical and Electronics Engineers Virtual Reality 2008, Haptics Symposium, March 8 – 14, Reno, Nevada, USA, 2008
		Paper presented: Campion, G., **Gosline, A. H**. and Hayward, V. *Passive Viscous Haptic Textures.*	Proc. Institute of Electrical and Electronics Engineers Symposium on Haptic Interfaces For Virtual Environments And Teleoperator Systems, pp. 379-380 Reno NV, USA, March 13-14, 2008,
2008	Vahid Raissi Dehkordi	Paper presented: **Vahid Raissi Dehkordi** and Benoit Boulet, *Conditions for Robust Stability in the Presence of Controller Uncertainty in SISO LTI Systems*	International Association of Science and Technology for Development (IASTED) International Conference on Control and Applications, May 26 – 28, Quebec, QC, CANADA, 2008
2008	Michèle Faragalli	Scholarship	Precarn
		Participation in Expedition Delta to the Mars Desert Research Station (MDRS) located in Utah.	Mars Society Canada -Exploration Delta
2008	Abdul Razzak Selman	Scholarship	Precarn
2008	Carmen Au	Scholarship	Precarn
		Paper presented: **Carmen E. Au** and James Clark, *View Integration and Display using Virtual Mirrors*	The Fifth Canadian Conference on Computer and Robot Vision (CVR'08), May 28-30, Windsor, ON, CANADA, 2008
2008	Stéphane Pelletier	Scholarship	Precarn
		Paper presented**: S. Pelletier** and J.R. Cooperstock: *Fast Super-resolution for Rational Magnification Factors*	Institute of Electrical and Electronics Engineers 14th International Conference on Image Processing (ICIP2007), Sept. 16 – 19, San Antonio, TX, USA, 2007
2008	Vlasialav Ganine	Paper presented: **V. Ganine**, M. Legrand, C. Pierre, and H. Michalska, *A Reduction Technique for Mistuned Bladed Disks with Superposition of Large Geometric Mistuning and Small Model Uncertainties*	Proceedings of the 12th International Symposium on Transport Phenomena and Dynamics of Rotating Machinery, Feb. 17 – 22, Honolulu, USA, 2008

Year	Name	Award	Organisation
2008	Mitchel Benovoy	**Benovoy, M.,** Cooperstock, J.R., Deitcher, J., *Bio-signals Analysis and Its application in a Performance Setting*	Proceedings of the International Conference on Bio-inspired Systems and Signal Processing, January 28-31, Funchal Madeira-PORTUGAL, 2008
		Benovoy, M. et al. *Audio-visual Content Generation Generated from Bio-signals for Artistic and Clinical Applications*	Proceedings of eNTERFACE'07 SIMILAR NoE Summer Workshop on Multimodal Interfaces, July 16 – Aug 10, Istanbul, TURKEY, 2007
		Poster presented: *Emotion Recognition using Bio-signals*	Centre for Interdisciplinary Research in Music Media and Technology 2007 Colloquium, May 2007, McGill University, Montreal, CANADA,
		Talk presented: *Emotion Recognition Using Bio-signals Analysis* Workshop talks:	Brain, Music and Sound Workshop on Music the Brain and Emotions, Univ. de Montréal
		Capturing Bio-signals for Musical Performance Analysis Bio-signals Analysis	PD Conference, 2007, Univ. de Montréal
2007-2008	Philippe Cardou	Paper published: **Cardou, P.** and Angeles, J.**,** *Angular velocity estimation from the angular acceleration matrix*	*Journal of Applied Mechanic*s, Vol. 75, pp. 021003-1-021003-8.2008
		Paper presented: **Cardou, P.** and Angeles, J., `*Singularity analysis of accelerometer strapdowns for the estimation of the acceleration field of a planar rigid-body motion*	Proc. of 12th IFToMM (International Federation for the Promotion of Mechanism and Machine Science) World Congress, in Besançon, France, June 18-21, 2007
		Cardou, P. and Angeles, J., *Simpletic architectures for true multi-axial accelerometers: a novel application of parallel robots*	Proceedings. IEEE (Institute of Electrical and Electronics Engineers) International Conference on Robotics and Automation, (ICRA'07) Roma, Italy, April 10-14, 2007,
2007-2008	Peter Savadjiev	**P. Savadjiev**, J. S. W. Campbell, M. Descoteaux, R. Deriche, G. B. Pike and K. Siddiqi, *Labelling of Ambiguous Sub-voxel Fibre Bundle Configurations in High Angular Resolution Diffusion MRI* Paper presented:	To appear, Neuroimage, 2008. PDF © 2008 by Elsevier.
		P. Savadjiev, S. W. Zucker and K. Siddiqi, *On the Differential Geometry of 3D Flow Patterns: Generalized Helicoids and Diffusion MRI Analysis*.	Institute of Electrical and Electronics Engineers International Conference on Computer Vision, [PDF] © 2007 by IEEE, Rio de Janeiro, BRAZIL, October 14 – 20, 2007.

Year	Name	Award	Organisation
2007-2008	Junaed Sattar	Scholarship	Precarn
		Paper published: **Junaed Sattar,** Eric Bourque, Philippe Giguère and Gregory Dudek, *Fourier Tags: Smoothly Degradable Fiducial Markers for use in Human-robot Interaction*	Proceedings of the Canadian Conference on Computer and Robot Vision (CRV) 2007. Montreal, Canada, May 2007.
		Anqi Xu, Gregory Dudek, and **Junaed Sattar:** *A Natural Gesture Interface for Operating Robotic Systems*	Proceedings of the Institute of Electrical and Electronics Engineers International Conference of Robotics and Automation (ICRA) 2008, May 19-23, Pasadena CA, USA, 2008
		Junaed Sattar and Gregory Dudek: *Where Is Your Dive Buddy: Tracking Humans Underwater using Spatio-Temporal Features*	Proceedings of the Institute of Electrical and Electronics Engineers/Robotics Society of Japan International Conference on Intelligent Robots and Systems (IROS), 29 Oct – 02 Nov, San Diego CA, USA, 2007
2007 - 2008	Yon Visell	**Paper presented: Y. Visell** and J. Cooperstock: *Modelling and Continuous Sonification of Affordances for Gesture-Based Interfaces*	13th International Conference on Auditory Displays (ICAD'07), June 26 – 29, Montréal, QC, CANADA, 2007
		Y. Visell and J. Cooperstock: *Enabling Gestural Interaction by Means of Tracking Dynamical Systems Models and Assistive Feedback*	Proceedings of Institute of Electrical and Electronics Engineers International Conference on Systems, Man, and Cybernetics (IEEE SMC'07), Oct 7-10, Montréal, QC, CANADA, 2007
		Y. Visell, J. Cooperstock and K. Franinovic: *The EcoTile: An Architectural Platform for Audio-Haptic Simulation in Walking*	Proceedings of the 4th International Conference on Enactive Interfaces (ENACTIVE'07), Nov 19-24, Grenoble, FRANCE, 2007,
		Workshop presentation: D. Rocchesso, **Y. Visell,** K. Franinovic, F. Behrendt, S. Pauletto, P. Susini, R. Bresin et al. *Sonic Interaction Design*	Association for Computing Machinery, Computer–Human Interaction, Workshop on Sonic Interaction Design, April 5 – 10, Firenze, ITALY, 2008
		R. Bresin, S. Della Monache, F. Fontana, S.Pappettik, P. Polotti, **Y. Visell:** *Auditory Feedback from Continuous Control of Crumpling Sound Synthesis*	Association for Computing Machinery, Computer–Human Interaction, Sound, Information, and Experience Workshop, April 5 – 10, Firenze, ITALY, 2008
		T. Hermann, **Y. Visell**, R. Murray-Smith, J. Williamson, E. Brazil: *Sonification of Sonic Interaction Design*	Association for Computing Machinery, Computer–Human Interaction, Workshop on Sonic Interaction Design, April 5 – 10, Firenze, ITALY, 2008

Year	Name	Award	Organisation
		Y. Visell et al.: *Multisensory Display of Virtual Ground Materials in Locomotion*	Centre for Interdisciplinary Research in Music, Media, and Technology Workshop on Multimodal Influence on Perceived Self Motion, Feb 04, Montréal, QC CANADA, 2008
		Demonstration: K. Adilogu, R. Annies, **Y. Visell,** C. Drioli: *The Adaptive Bottle: Adaptive Sonic Artifacts*	21st Annual Conference on Neural Information Processing Systems (NIPS'07), Dec 3 – 8, Vancouver BC, CANADA, 2007
		Poster presented: **Y. Visell:** *Designing Sensorimotor Control in Human Computer Interaction*	5th European Neuro-IT and Neuro-engineering School, Delmenhorst, July 15-21, GERMANY, 2007
2007	Ruisheng Wang	Paper Published: **Wang, R.**, Tao, V., and F. Ferrie, *Non-rigid Space Resection by Parameterized Models*	7th International Workshop of Geographical Information System (IWGIS'07) September 14-15, 2007, Beijing, China
		Doctoral Scholarship (2006 – 2008) Engineering Doctoral Award (MEDA) (2006 – 2009)	Natural Sciences and Engineering Research Council of Canada McGill University
2007	Scott McCloskey	Paper presented: **S. McCloskey**, M.S. Langer, K. Siddiqi, *Evolving Measurement Regions for Depth from Defocus*	8th Asian Conference on Computer Vision Vol. 2, pp. 858--868, Tokyo, Japan Nov. 18 - 22, 2007.
		S. McCloskey, M.S. Langer, K. Siddiqi, *Automatic Removal of Partial Occlusion Blur*	8th Asian Conference on Computer Vision Vol. 1, pp. 271--282, Tokyo, Japan, Nov 18 – 22, 2007.
2007 Sept 2007 – Aug 2009	John Harrison	Scholarship - Project SII-62	Geomatics for Informed Decisions (GEOIDE)
		Scholarship - Alexander Graham Bell	Natural Sciences and Engineering Research Council of Canada
		Poster presented: **John Harrison**, *Improved Position Estimation via LiDAR Registration*	Geomatics for Informed Decisions (GEOIDE) 9th Annual Scientific Conference, June 6-8, Halifax, NS, CANADA, 2007
		Paper presented: **John Harrison,** *Tessellation of Ground-based LIDAR Data for ICP Registration*	Proceedings of The Fifth Canadian Conference on Robot and Computer Vision (CRV2008) May 28-30, Windsor, ON, CANADA, 2008
2007	Vincent Lévesque	Best Demo Award: **Vincent Levesque,** Andrew H.C Gosline, and Vincent Hayward: *Tactile Graphics Rendering using Three Laterotactile Drawing Primitives*	Institute of Electrical and Electronics Engineers Virtual Reality 2008, Haptics Symposium, March 8-14, Reno, Nevada, USA, 2008

Year	Name	Award	Organisation
		Paper presented: Pasquero, J., Luk, J., **Lévesque, V.,** Wang, Q., Hayward and K.E. MacLean: *Haptically Enabled Handheld Information Display with Distributed Tactile Transducer*	Institute of Electrical and Electronics Engineers Transactions on Multimedia 9(4), pp746-753, June 2007
2007	Sawsan El-Fashny	Paper published: Zsombor-Murray, P.J. and **El Fashny, S.**, A *Cylinder of Revolution on Five Points*	*Journal for Geometry and Graphics*, v.10, n.2, pp.125-131.
2007	Nicolas Plamondon	Scholarship – B2	Le Fonds québécois de la recherche sur la nature et les technologies
2007	Svetlana Stolpner	Doctoral Scholarship -	Le Fonds québécois de la recherche sur la nature et les technologies
2007	Catherine Laporte	Scholarship – Max E. Binz	McGill University
		Scholarship – Doctoral Scholarship	Fondation Desjardins
		Paper presented: **Catherine Laporte** and Tal Arbel, *Probabilistic Speckle decorrelation for 3D Ultrasound*	Proceedings of the 10th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI), part 1,pp 925-932, Oct. 29 – Nov. 2, Brisbane, AUSTRALIA, 2007
2007	Hamed Azarnoush	Recruitment Excellence Fellowship	McGill University
		H. Azarnoush, K. Khorasani, *Fault Diagnosis in Spacecraft Attitude Control System*	Institute of Electrical and Electronics Engineers International Conference on Systems, Men and Cybernetics (SMC 2007), October 7-10, Montréal, QC, CANADA, 2007
		H. Azarnoush, F. Muir, S. Agaian, M. Jamshidi, M. Shadaram, *Alaryngeal Speech Enhancement using Minimum Statistics Approach to Spectral Subtraction*	Institute of Electrical and Electronics Engineers International Conference on System of Systems Engineering, 2007 (SoSE'07), April 16-18, san Antonio TX, USA, 2007
2007	Oleg Gubanov	Postgraduate Doctoral 3	Natural Sciences and Engineering Research Council of Canada
		Les Vadasz Doctoral Fellowship	McGill University
2007	Olivia Chiu	Scholarship – Post Graduate Award – Masters	Natural Sciences and Engineering Research Council of Canada
		Paper presented: **O. Chiu,** M. Nahon, and N. Plamondon, *Stability Augmentation for a Hexapod Underwater Vehicle*	Proceedings of the 15th International Symposium on Unmanned Un-tethered Submersible Technology Aug. 19 – 20, Durham, NH, USA, 2007

Year	Name	Award	Organisation
2007	Waseem Ahmad Khan	**Khan, W.A.,** Zhuang, H., and Angeles, J., *RVS4W: A visualization tool for robot design*	*Proc. CDEN (*The Canadian Design Engineering Network)/ *C2E2* (Canadian Congress on Engineering Education) 2007 Conference, Winnipeg, Alberta, July 22-24, 2007
		Khan, W.A., Caro, S., Angeles, J. and Pasini, D, *A formulation of complexity-based rules for the preliminary design stage of robotic architectures*	Proc. of the International Conference Engineering Design, ICED '07, Paris, FRANCE August 28-31, 2007
		Khan, W.A., Zhuang, H., and Angeles, J., *RVS4W: A visualization tool for robot design*	Proc. CDEN (The Canadian Design Engineering Network)/ C2E2 (Canadian Congress on Engineering Education) 2007 Conference, Winnipeg, Alberta, July 22-24, 2007
2007	Seyed Ali Modarres Nafabadi	Paper presented: **Modarres Najafabadi, S.A.,** Kövecses, J. and Angeles, J., *An energy-based approach to the dynamics of impacts in unilaterally-constrained multi-body systems*	Proc. of ASME (American Society of Mechanical Engineers) International Design Engineering Technical Conferences & Computers and Information in Engineering Conference, DETC2007-35736, Las Vegas, Nevada, USA, Sept. 4-7, 2007,
		Modarres Najafabadi, S. A., Kövecses, J. and Angeles, J., *Energy analysis of contacts in multi-body systems: a novel interpretation of the energetic coefficient of restitution*	Proc. of 12th IFToMM (International Federation for the Promotion of Mechanism and Machine Science) World Congress, in Besançon, France, June 18-21, 2007
		Modarres Najafabadi, *S.A.*, Kövecses, J. and Angeles, J.: *An Energy Approach to Dynamics Analysis of Impacts in Multibody Systems*.	21st Canadian Congress of Applied Mechanics, pp. 583-584, Toronto, Ontario, June 3 - June 7, 2007.
		Modarres Najafabadi, S.A., Kövecses, J., and Angeles, J.: *A Novel Approach to Dynamics Analysis of Multiple-Point Impacts Involving Multibody Systems*.	2007Canadian Committee for the Theory of Machines and Mechanisms (CcToMM) Symposium on Mechanisms, Machines, and Mechatronics, Paper #: CCToMM07-N09, Saint-Hubert, Québec, May 31 - June 1, 2007
		Paper published: **Modarres Najafabadi, S. A.,** Kövecses, J. and Angeles, J.**,** *Energy analysis and decoupling in three-dimensional impacts of multi-body systems*	J*ournal of Applied Mechanics*, Vol. 74. pp. 845-851, 2007

Year	Name	Award	Organisation
2007	Waseem Ahmad Khan	**Khan, W.A.**, Caro, S., Angeles, J. and Pasini, D, *A formulation of complexity-based rules for the preliminary design stage of robotic architectures*	Proc. of the International Conference Engineering Design, ICED '07, Paris, FRANCE August 28-31, 2007
		Khan, W.A., Zhuang, H., and Angeles, J.**,** *RVS4W: A visualization tool for robot design*	*Proc. CDEN (*The Canadian Design Engineering Network)*/ C2E2* (Canadian Congress on Engineering Education) 2007 Conference, Winnipeg, Alberta
		Khan, W.A. and Angeles, J., *The role of entropy in design theory and methodology*	Proc. CDEN (The Canadian Design Engineering Network)/ C2E2 (Canadian Congress on Engineering Education) 2007 Conference, Winnipeg, Alberta, July 22-24, 2007
2007	Peng Jia	Paper presented: Clare W. Qu, **Peng Jia**, and Peter E. Caines: *Analysis of a Class of Decentralized Decision Processes: Quantized Progressive Second Price Auctions*	Proceedings of the 46th Institute of Electrical and Electronics Engineers Conference on Decision and Control, Dec 12 – 14, New Orleans, LA, USA 2007
2007-2008	Arman Kizilkale	Fellowship: - Lorne Trottier Engineering Graduate	McGill University
2007-2008	Muminul Chy Md	Fellowship; - Lorne Trottier Engineering Graduate	McGill University
	Dimitri Marinakis	Paper presented: **D. Marinakis,** and G Dudek, *Occam's' Razor Applied to Network Topology Inference*	Institute of Electrical and Electronics Engineers (IEEE) Transactions on Robotics
		D. Marinakis and G. Dudek, *Self-Calibration of a Vision-based Sensor Network*	Image and Vision Computing
		D. Marinakis, D. Meger, I. Rekleitis and G. Dudek, *Hybrid Inference for sensor Network Localization using a Mobile Robot*	Proceedings of the Association for the Advancement of Artificial Intelligence (AAAI) 22nd National Conference on Artificial Intelligence, July 22-26, Vancouver, BC, CANADA, 2007
		G. Dudek and **D. Marinakis**, *Topological Mapping with Weak Sensory Data*	Proceedings of the Association for the Advancement of Artificial Intelligence (AAAI) 22nd National Conference on Artificial Intelligence, July 22-26, Vancouver, BC, CANADA, 2007
		D. Marinakis, P. Giguère and G. Dudek, *Learning Network Topology from Simple Sensor Data*	Proceedings of the Association for the Advancement of Artificial Intelligence (AAAI) 22nd National Conference on Artificial Intelligence, July 22-26, Vancouver, BC, CANADA, 2007

Year	Name	Award	Organisation
2008	Nils Tilton	**Tilton, N** and Cortelezzi, L., *Linear stability analysis of pressure-driven flow in channels with porous walls.*	Journal of Fluid Mechanics, v. 604, pp 411 – 445, 2008
2008	Amir Danak	**Amir Danak** and Shie Mannor, *Identification in Market-based Multi-robot Coordination*	Proc. Institute of Electrical and Electronics Engineers Conference on Distributed Human-Machine Systems, March 9-12, Athens, GREECE, 2008
2007 – 2008	Melita Hadzagic	Scholarship	Natural Sciences and Engineering Research Council of Canada-Laval University-Lockheed Martin Canada
		Papers published: E. Lefebvre, **M. Hadzagic,** É. Bossé: *On Quality of Information in Multi-source Fusion Environments, Advances and Challenges in Multisensor Data and Information Processing*	NATO Security through Science Book Series, D: Information and Communication Security, pp.69-77, IOS Press, 2007
		Poster presented: E. Lefebvre, **M. Hadzagic,** H. Michalska: *On Data fusion Challenges and Architectures in Maritime Surveillance*	REPARTI Colloquium in Distributed Intelligent Systems, McGill University May 31, 2007
		Paper presented: **M. Hadzagic,** H. Michalska, D.Grenier: **I** *Evaluation of the Integrated Ornstein-Uhlenbeck Process in Application to Ship Track Estimation,*	The 10th The International Association of Science and Technology for Development (IASTED) International Conference on Signal and Image Processing, Kailua-Kona, Hawai'i USA 18 – 20th Aug, 2008
		M. Hadzagic*: Manoeuvring Target Statistical Tracker-mathematical Background,*	Lockheed-Martin Canada-McGill University Technical Report

STUDENT DISTRIBUTION

Professor	Dept.	Masters	PhD	Researcher	PDF	Visiting Prof.	For. students	Ugrads/Projects	
Angeles	ME	4	1.5	1	1	1	6	1	
Cortelezzi	ME	1	2	0	1	0	0	0	
Kövecses	ME	0	3	0	1	0	0	0	
Nahon	ME	2	3	0	0	0	0	0	
Sharf	ME	3	0	0	0	0	0	0	
Zsombor-Murray	ME	0	0	0	0	0	0	0	
Subtotal		**10**	**9.5**	**1**	**3**	**1**	**6**	**1**	
Arbel	ECE	1	3	0	1	0	0	0	
Boulet	ECE	6	3	0	0	0	1	8	
Caines	ECE	0	4	0	0	0	0	0	
Clark	ECE	0	3	0	0	0	0	1	
Cooperstock	ECE	2	4	2	2	1	0	1	
Ferrie	ECE	4	5	0	0	0	0	2	
Hayward	ECE	0	6	0	1	0	0	3	
Levine	ECE	2	2	0	0	0	0	1	
Mannor	ECE	3.5	3.5	0	0	0	0	1	
Michalska	ECE	1	5.5	0	0	0	0	0	
Subtotal		**19.5**	**39**	**2**	**4**	**1**	**1**	**17**	
Dudek	SOCS	4	4.5	1	1	0	0	1	
Langer	SOCS	2	2	0	0	0	0	0	
Siddiqi	SOCS	0	4	0	0	0	0	1	
Subtotal		**6**	**10.5**	**1**	**1**	**0**	**0**	**2**	
TOTAL		**35.5**	**59**	**4**	**8**	**2**	**7**	**20**	**135.5**

STUDENT RESEARCH TOPICS INFORMATION

Name	Degree	Supervisor	Thesis/Topic
Arshed, Muhammad Sakhar	M.Eng	Boulet	Control and Automation Systems
Audet, Samuel	M.Eng	Cooperstock	Shadow Removal from Multi-Projector Displays via Three-Dimensional Modelling and Object Tracking
Azar, Toufic	M.Eng	Angeles/Kövecses	Design of a Mechanism for Percutaneous Mitral Valve Repair
Barnett, Eric	M.Eng	Angeles	Design of a Robotic System for the Construction of Ice Structures
Bélanger-Roy, Thierry	M.Eng	Arbel	Medical Imaging
Chen, Yan	M.Eng	Boulet	Control of Angioplasty Balloon Forming Process
Chiu, Olivia Min Yee	M.Eng	Nahon	A Stability and control System for a Hexapod Underwater Vehicle
Dallal, Eric	M.Eng	Mannor	Stochastic Computation
Desrochers, Simon	M.Eng	Angeles/Pasini	Design and Fabrication of Multi-axis Accelerometers
Eckbo, Ryan	M.Eng	Cortelezzi/Siddiqi	Simulating Vortex Ring Collisions: Extending the Hybrid Method
El-Shimy, Dalia	M.Eng	Cooperstock	Supporting Conversation Dynamics in Video-conferencing
Faragalli, Michéle	M.Eng	Sharf	Intelligent /Adaptive Control of PAW Robot
Gauthier, Jean-François	M.Eng	Angeles/Nokleby	Contributions to the Optimum Design of Schönflies-motion Generators
Hao, Yuan	M.Eng	Boulet	Industrial Systems and Control
Harmat, Adam	M.Eng	Sharf	Dynamic Locomotion in Robots
Howard, Alistair	M.Eng	Nahon	Experimental Characterization and Simulation of a Tethered Aerostat with Controllable Tail Fins
Law, Albert	M.Eng	Ferrie	Limited Survey of Tracking Algorithms in Video Sequences
Law, Alvin	M.Eng	Cooperstock	Natural Interactive Walking
Leduc-Primeau, Francois	M.Eng	Mannor	Control and Learning Systems
Li, Xiao Dong	M.Eng	Boulet	Industrial Control Systems
Maalouf, Wadih	M.Eng	Boulet	Thermoforming Control Processes
Meghjani, Malika	M.Eng	Dudek/Ferrie	Video Surveillance
Mirza, Hasan	M.Eng	Mannor	Control and Learning Systems
Oryschuk, Patrick	M.Eng	Angeles	The Implementation and Testing of the Control of a Two-wheeled Mobile robot
Patel, Prakash	M.Eng	Ferrie	Using the Graphics Processor Unit to Speed up Computer Vision Algorithms; Specifically a Markov- Network-Based Super-resolution Algorithm
Phan, Andrew Minh Tri	M.Eng	Ferrie	Obtaining Dense Road Speed Estimates from Sparse GPS Measurements
Plamondon, Nicolas	M.Eng	Nahon	Dynamics and Control of the Aqua Underwater Vehicle
Robert, Joël	M.Eng	Sharf	Autonomous Capture of a Free-Floating Object using a Predictive Approach
Sarkis, Gabi	M.Eng	Mannor/Caines	Stochastic Non-binary LDPC Decoding
Tang, Ying	M.Eng	Levine	Content Based Image Retrieval
Yang, Shuonan	M.Eng	Boulet	Cycle-to-Cycle Control of Plastic Sheet Heating on the AAA Thermoforming Machine
Yu, Shen	M.Eng	Ferrie	Computer Vision/Behaviour Recognition

Name	Degree	Supervisor	Thesis/Topic
Zhao, Bin	M.Eng	Levine	Content Based Indexing
Masciola, Marco	M.Eng..	Nahon	Dynamics and Control of Offshore Tension Leg Platform
Drouin, Simon	M.Sc.	Dudek	Video Segmentation using Markov Random Fields
Lobos, John-Paul	M.Sc.	Dudek/Rekleitis	Autonomous Capabilities in Underwater Robots
Mannadiar, Raphael	M.Sc.	Dudek/Ferrie	Estimating Egomotion from the Fusing of Visual and Inertial Measurements
Mannan, Fahim	M.Sc.	Langer	Computer Vision
Mills, Alec	M.Sc.	Dudek	Video Mosaicking
Pomerantz, Daniel	M.Sc.	Dudek	Designing a Better Movie Recommender
Abou-Moustafa, Karim T.	Ph.D	Ferrie	Learning Data-Dependant Metrics and Similarity Measures
Alizadeh, Danial	Ph.D	Angeles/Nokleby	Optimization of Schönflies-motion Generators
Au, Carmen	Ph.D	Clark	Dynamic Panoramic Image Mosaicing
Azarnoush, Hamed	Ph.D	Boulet	Linear Parameter Varying Control
Benovoy, Mitchel	Ph.D	Cooperstock	Biosignals Analysis for Performance
Boily, David	Ph.D	Michalska	Differential Games with Time Delays
Brooks, Rupert	Ph.D	Arbel	Fast Direct Image Registration for Registration without Reconstruction
Campion, Gianni	Ph.D	Hayward	Graphics for Surgical Simulation
Cardou, Philippe	Ph.D	Angeles	Design of Multiaxial Accelerometers with Simplicial Architectures for Rigid-Body Pose-and-Twist Estimation
Chapdelaine-Couture, Vincent	Ph.D	Langer	3D Reconstruction of Cluttered Scene form Video Sequence
Cowan, David James	Ph.D	Sharf	Dynamics Modelling, Simulation and Control of Mars Rover with ADAMS
Cushon, Kevin	Ph.D	Mannor	Systems and Control
Danak, Amir	Ph.D	Mannor	Learning in Repeated First-Price Auctions
Fan, Shufei	Ph.D	Ferrie	Stereo Vision
Ganine, Vlasialav	Ph.D	Michalska/Pierre	Modelling of Mistuned Bladed Disk Assemblies, Model-order Reduction of Systems with Parametric Uncertainties
Gauthier, Guy	Ph.D	Boulet	Terminal Iterative Learning Control
Germaine, Emmanuel	Ph.D	Cortelezzi/Mylardski	Modelling the Scalar Dissipation Rate in Fields generated by Concentrated Sources
Giannitsios, Demetri	Ph.D	Kövecses/Steffen	Development of a Minimally Invasive Surgical Tool for Selective Soft Tissue Removal
Giguère, Philippe	Ph.D	Dudek	Perception and Locomotion/Mobile Robots
Gill, Gurman Singh	Ph.D	Levine	Object Detection
Girdhar, Yogesh	Ph.D	Dudek	Underwater Robotics
Gosline, Andrews Havens	Ph.D	Hayward	Haptic Rendering
Gubanov, Oleg	Ph.D	Cortelezzi	Laminar Mixing Optimization in Two- and Three-Dimensional Flows
Hadzagic, Melita	Ph.D	Michalska	Trajectory Estimation in the Absence of a Reliable Model
Haji Abolhassani, Amin	Ph.D	Clark	Visual-Motor Attention
Harrison, John	Ph.D	Ferrie	Artificial Perception of Cluttered Scenes
Jia, Peng	Ph.D	Caines	On the Rapid Convergence Analysis of a Class of Decentralized Decision Processes

Name	Degree	Supervisor	Thesis/Topic
Jie, Li	Ph.D	Clark	Dynamic Model of Attention
Jin, Ming	Ph.D	Kövecses/Lange	High-fidelity Modelling and Parameter Identification for Hardware-in-the-Loop Simulations
Kersten, Marta	Ph.D	Langer	Enhancing Depth Perception in Medical Images
Khan, Waseem Ahmad	Ph.D	Angeles/Pasini	The Conceptual Design of Robotic Architectures using Complexity Criteria
Kiriy, Evgeni	Ph.D	Michalska	Multivariate Change Detection
Kizilkale, Arman Cagdas	Ph.D	Caines/Mannor	Multi-Agent Systems
Lala, Prasun	Ph.D	Ferrie	Saliency and Active Vision using Psychophysical Correlates
Laporte, Catherine	Ph.D	Arbel	Untracked Freehand 3D Ultrasound
Lévesque, Vincent	Ph.D	Hayward	Tactile Synthesis by Lateral Skin Deformation
Li, Yuwen	Ph.D	Nahon/Sharf	Dynamics Modelling and Simulation of Flexible Airships
Liesk, Torsten	Ph.D	Nahon	Control of a High–Performance Airship
Lu, Mu-Chiao	Ph.D	Michalska	Delay Identification and Model Predictive Control of Time-delayed Systems
Luo, Lianzhen	Ph.D	Nahon	Development and Validation of a Geometry-based Contact Force Model
Ma, Zhongjing	Ph.D	Caines/Malhame	On the Optimal and Distributed Control of Stochastic Network Systems
Marinakis, Dimitri	Ph.D	Dudek	Inferring Environmental Representations through Limited Sensory Data with Applications to Sensor Network Self-Calibration
McCloskey, Scott	Ph.D	Siddiqi/Langer	Depth from Defocus via Reverse Projection
Modarres Najafabadi, Seyed Ali	Ph.D	Kovecses/Angeles	Dynamics Modelling and Analysis of Impact in Multibody Systems
Momayyez Siahkal, Parya	Ph.D	Siddiqi	Medical Image Analysis
Nourian Aval Noghabi, Mojtaba	Ph.D	Caines	Systems and Control
Pasquero, Jérôme	Ph.D	Hayward	Tactile Feedback for Mobile Devices
Pelletier, Stéphane	Ph.D	Cooperstock	High-resolution Video Synthesis
Plamondon, Nicolas	Ph.D	Nahon	Control of Underwater Biometric Robot
Qi, Zhi	Ph.D	Cooperstock	High-resolution Mosaicing with Limited Camera Overlap
Raissi Dehkordi, Vahid	Ph.D	Boulet	Managing Uncertainly in Robust Controller Implementation
Ruzzeh, Bilal	Ph.D	Kovecses	Dynamics of Redundantly Constrained or Actuated Mechanical Systems with Applications to Musculo-skeletal Mechanics
Sahambi, Harkirat Singh	Ph.D	Levine	Face Tracking in Crowds
Sattar, Junaed	Ph.D	Dudek	Visual Human-Robot Interaction
Savadjiev, Peter	Ph.D	Siddiqi	3D Curve Inference for Diffusion MRI Regularization and Fibre Tractography
Selman, AbdulRazzak	Ph.D	Michalska/Hayward	Input-output Control and Stabilization of Systems with Unstable Zero Dynamics
Skaff, Sandra	Ph.D	Clark	Spectral Models for Colour Perception
Stolpner, Svetlana	Ph.D	Siddiqi/Whitesides	3D shape Analysis Using Medial Surfaces
Tabandeh, Shahram	Ph.D	Michalska	Random Search Algorithms in Financial and Engineering Applications

Name	Degree	Supervisor	Thesis/Topic
Taringoo, Farzin	Ph.D	Caines	Control Systems
Tilton, Nils	Ph.D	Cortelezzi	Stability Characterization and Drag Reduction of Flows Over Porous Surfaces
Toews, Matthew	Ph.D	Arbel	A Probabilistic Model to Learn, Detect, Localize and Classify Patterns in Arbitrary Images
Visell, Yon	Ph.D	Cooperstock	Machine Learning Techniques for Closed-loop Gestural Input
Wang, Ruisheng	Ph.D	Ferrie	Camera Localization in Indoor and Outdoor Environments
Xu, Huan	Ph.D	Mannor/Caines	Decision Making under Uncertainties
Yao, Hsin-Yun	Ph.D	Hayward	Haptics and Perception
Yin, Jianfeng	Ph.D	Cooperstock	Toward an Alternative Approach to Multi-Camera Scene Reconstruction
Yu, Jia Yuan	Ph.D	Mannor	Machine Learning

VISITING LECTURES

Dates	Name	Affiliation	Supervisor
2007.06.26 – 2007.08.03	Oscar Salgado	Visiting Student Universidad del Pais Vasco, Departemento de Ingenería en Bi Mecánica, Alamanda de Urquido S/N 48013 Bilbao, Pais Vasco, SPAIN	Jorge Angeles
2007.07.01-2007.08.31	Mounia Ziat	Post-Doctoral Fellow	Vincent Hayward
2007.07.04 – 2007.08.24	Enrico Cupellini	University of Calabria- Dept. of Linguistics Arcavacata(Rende, Cosenza,) Italy	Jeremy Cooperstock
2007.07.09 – 2007.09.30	Daniel Ignacio Peon de la Parra	Visiting Student: Johannes Kepler Universität Linz, Altenberger Str. 69, A-4040 Linz, AUSTRIA	Meyer Nahon
2007.07.26 – 2008.07.15	Bian YuShu	Post Doctoral Fellow: *The Modelling of a Mitral Valve using Finite Elements* BeiHang University Beijing, CHINA	Jozsef Kövecses / Jorge Angeles
2007. 08.09 – 2007.08.23	Marcello Stani	Visitng Student: Universita Della Calabria-Unical Arcavacata, Rende 87036 Cosenza, ITALY	Jeremy Cooperstock
2007.09.01 – 2008.08.31	Guangyu Wang	Post-Doctoral Fellow	Jeremy Cooperstock
2007.08.20 – 2008.09.01	Nicolas Bouillot	Post-Doctoral Fellow: Conservatoire National des Arts et métiers CNA_ - 292 rue St. Martin 75141 Paris Cedex 03, FRANCE	Jeremy Cooperstock
2007.08.27 – 2008.09.01	Josep Maria Font Llagunes	Post-Doctoral Fellow: *Dynamics of Natural and Artificial Walking Systems* Technical University of Catalonia Avenida Diagonal 647 08028 Barcelona SPAIN	Joszef Kövecses
2007.09.23 – 2007.10.2007	Haijun Zhang	Visiting Professor: Associate Professor in Research Centre of CAD/CAM Engineering Nanjing University of Aeronautics and Astronautics PR China.	Jorge Angeles
2007.01.03 – 2007.12.31	Saeed Ebrahimi	Post-Doctoral Fellow: *Dynamics Identification of Mechanical Systems*	Jozsef Kövecses
2007.04.01 – 2007.09.14	Sebastian Herold	Foreign Student Systems Engineering and Cybernetics Program Magdeburg University Magdeburg, Germany	Benoit Boulet

Dates	Name	Affiliation	Supervisor
2007.09.24 – 2008.08.30	Nando de Freitas	Visiting Professor: University of British Columbia Dept. of Computer Science 2366 Main Mall Vancouver BC V6T 1Z4	James Clark / Gregory Dudek
2007.10.22-2007.11-30	Maarten Wijntjes	Visiting Student: Utrecht University P.O. Box 80125 3508TC Utrecht THE NETHERLANDS	Vincent Hayward
2007.11.13 – 2007.11.30	Irene Fasiello	Visiting Student: Université Paris Descartes Laboratoire LPP 45, rue des Saints-Pères 75006 Paris FRANCE	Vincent Hayward
2007.11.18 – 2008.03.15	Muhammad Abu Bakar	Post-Doctoral Student: 176 Abubakr Block New Garden Town Lahore PAKISTAN 54600	Gregory Dudek
2008.01.21 – 2008.12.31	François Bérard	Visiting Professor: Institute National Polytechnique de Grenoble 46, avenue Félix Viallet 38031 Grenoble Cedex1, FRANCE	Jeremy Cooperstock
2008.02.15 - 2008.06.30	Faraz Mohammad Mirzaei	Post-Doctoral Fellow: University of Minnesota Dept. of Computer Science 4-192 EE/CS Bldg. 200 Union Street S.E Minneapolis, MN, 55455	Gregory Dudek
2008.03.01 – 2008.06.30	Raquel Dosil Lago	Visiting Professor Artificial Vision Group Dept. of Electronics and Computer Science Universidade de Santiago de Compostela Campus Universitario Sur, s/n 15782 Santiago de Compostela, SPAIN	James Joseph Clark
2008.03.01 -	Thomas Hermann	Visiting Professor Neuro-informatics Group Faculty of Technology Bielefeld University, GERMANY	Jeremy Cooperstock
2008.04.01 – 2008.12.31	Ali Naderi	Post-Doctoral Fellow: Ecole Polytechnique C.P 6079 Succ. A. Montréal QC H3C 3A7	Shie Mannor
2008.04.09-2008.06.28	Clément Carpentier	Student Researcher: École Polytechnique 91128 Palaiseau Cedex, France	Jozsef Kövecses
2008.04.15 – 2008.10.15	Ali Bonakdar	Post-Doctoral Fellow	Jozsef Kövecses
2008.05.05 – 2008.08.31	Marie-Pier Landry-Dubé	Undergrad Student Researcher Université du Québec à Rimouski 300 Allée des Ursulines Rimouski QC	Jorge Angeles

LIST OF PUBLICATIONS: MEMBERS

Year	Name	Publication	Organisation
2008	Jorge Angeles	Cardou, P. and **Angeles, J.,** *Estimating the angular velocity of a rigid body moving in the plane from tangential and centripetal acceleration measurements*	Multibody System Dynamics, Vol. 19, No. 4, pp. 383-406, 2008
2008	Jorge Angeles	Teng, C. P., Bai, S. and **Angeles, J.,** *Shape Synthesis in Mechanical Design*	*Acta Polytechnic*a, Vol. 47, No. 6, pp. 56-62, 2008
2008	Jorge Angeles	Cardou, P. and **Angeles, J.,** *Angular velocity estimation from the angular acceleration matrix*	*Journal of Applied Mechanic*s, Vol. 75, pp. 021003-1-021003-8.2008
2008	Jorge Angeles	Bai, S. and **Angeles, J.,** *A unified input-output analysis of four-bar linkages*	*Mechanism and Machine Theory*, Vol. 43, pp. 240-251, 2008
2008	Jorge Angeles	Chen, C., Bai, S. and **Angeles, J.,** *The synthesis of dyads with one prismatic joint'*	*Journal of Mechanical Design*, Vol. 130, pp. 034501-1-034501-6, 2008
2007	Jorge Angeles	Modarres Najafabadi, S. A., Kövecses, J. and **Angeles, J.,** *Energy analysis and decoupling in three-dimensional impacts of multi-body systems*	J*ournal of Applied Mechanics*, Vol. 74. pp. 845-851, 2007
2007	Jorge Angeles	Kövecses, J. and **Angeles, J.**, 2007, *The stiffness matrix in elastically articulated rigid-body systems*	*Multibody System Dynamics*, Vol. 18, pp.169-184, 2007
2007	Jorge Angeles	Larochelle, P., Murray, A. and **Angeles, J.,** 2007, *A distance metric for finite sets of rigid-body displacement via the polar decomposition*	*Journal of Mechanical Design*, Vol.~129, pp. 883-886, 2007
2007	Jorge Angeles	Chen, C., Zhang, X. and **Angeles, J.,** *Kinematic and geometric analysis of a pure-rolling epicyclic train*	*Journal of Mechanical Design*, Vol. 129, No. 8, pp. 852-857, 2007
2007	Jorge Angeles	Nasrallah, D., Angeles, J. and Michalska, H., *Controllability and Posture Control of a Wheeled Pendulum Moving on an Inclined Plane*	*IEEE* (*Institute of Electric and Electronic Engineers*) *Transactions on Robotics*, Vol. 23, No. 3, pp. 564-577, 2007
2007	Jorge Angeles	Figliolini, G., Stachel, H. and **Angeles, J.,** *A new look at the Ball-Disteli diagram and its relevance to spatial gearing*	*Mechanism and Machine Theor*y, Vol. 42. pp. 1362-1375, 2007
2007	Jorge Angeles	Chen, C., and **Angeles, J.,** *Generalized transmission index and transmission quality for spatial linkages*	*Mechanisms and Machine Theory*, Vol. 42, pp. 1225-1237, 2007
2007	Jorge Angeles	Theingin, Chen, I.-M., **Angeles, J**. and Li, C., *Management of parallel-manipulator singularities using joint-coupling*	*Advanced Robotics*, Vol. 21, No. 5-6, pp. 583-600, 2007
2007	Jorge Angeles	Salerno, A. and **Angeles, J.,** *A new family of two-wheeled mobile robots: modeling and controllability*	*Institute of Electrical and Electronics Engineers Transactions on Robotic*s, Vol. 23, No. 1, pp. 169-173, 2007
2007	Jorge Angeles	Chen, C. and **Angeles, J.,** *Virtual-power flow and mechanical gear-mesh power losses of epicyclic gear trains*	*Journal of Mechanical Design*, Vol.129, pp. 107-113, 2007

Year	Name	Publication	Organisation
2007	Jorge Angeles	Chen, C. and Angeles, J., *Optimum kinematics design of drives for wheeled mobile robots based on cam-roller pairs'*	*Journal of Mechanical Design*, Vol.129, pp. 7-16, 2007
2007	Jorge Angeles	Morozov, A. and **Angeles, J.,** *The mechanical design of a novel Schönflies-motion generator*	*Robotics and Computer-Integrated Manufacturing*, Vol. 23, pp. 82-93, 2007
2007	Jorge Angeles	Salerno, A. and **Angeles, J.,** *Robustness and controllability analysis for autonomous navigation of two-wheeled mobile robots*	Proc. of ASME (American Society of Mechanical Engineers) International Design Engineering Technical Conferences & Computers and Information in Engineering Conference, DETC2007-34415, Las Vegas, Nevada, USA, Sept. 4-7, 2007,
2007	Jorge Angeles	Modarres Najafabadi, S.A., Kövecses, J. and **Angeles, J.,** *An energy-based approach to the dynamics of impacts in unilaterally-constrained multi-body systems*	Proc. of ASME International Design Engineering Technical Conferences & Computers and Information in Engineering Conference, DETC2007-35736, Las Vegas, Nevada, USA, Sept. 4-7, 2007,
2007	Jorge Angeles	Bouyer, E., Caro, S., Chablat, D. and **Angeles, J.,** *The multi-objective optimization of a prismatic drive*	Proceedings. of ASME International Design Engineering Technical Conferences & Computers and Information in Engineering Conference, DETC2007-34795, Las Vegas, Nevada, USA, Sept. 4-7, 2007
2007	Jorge Angeles	Chen, C., **Angeles, J.,** *Design of wheeled mobile robots with advanced drives*	Proc. of ASME International Design Engineering Technical Conferences & Computers and Information in Engineering Conference, DETC2007-34178, Las Vegas, Nevada, USA, Sept. 4-7, 2007
2007	Jorge Angeles	Khan, W.A., Caro, S., **Angeles, J.** and Pasini, D, *A formulation of complexity-based rules for the preliminary design stage of robotic architectures*	Proc. of the International Conference Engineering Design, ICED '07, Paris, FRANCE August 28-31, 2007
2007	Jorge Angeles	Khan, W.A., Zhuang, H., and **Angeles, J.,** *RVS4W: A visualization tool for robot design*	*Proc. CDEN (*The Canadian Design Engineering Network)/ *C2E2* (Canadian Congress on Engineering Education) 2007 Conference, Winnipeg, Alberta, July 22-24, 2007
2007	Jorge Angeles	Modarres Najafabadi, S.A., Kövecses, J. and Angeles, J., *Dynamics analysis of multiple-point impacts in multi-body systems*	Proc. of ECCOMAS (European Community on Computational Methods in Applied Sciences) Multi-body Dynamics, Milano, Italy, June 25-28, 2007,
2007	Jorge Angeles	Modarres Najafabadi, S. A., Kövecses, J. and **Angeles, J.**, *Energy analysis of contacts in multi-body systems: a novel interpretation of the energetic coefficient of restitution*	Proc. of 12th IFToMM (International Federation for the Promotion of Mechanism and Machine Science) World Congress, in Besançon, France, June 18-21, 2007
2007	Jorge Angeles	Bourrelle, J. S., Chen, C., Caro, S. and **Angeles, J.,** *Graphical user interface to solve the Burmester problem*	Proc. of 12th IFToMM (International Federation for the Promotion of Mechanism and Machine Science) World Congress, in Besançon, France, June 18-21, 2007

Year	Name	Publication	Organisation
2007	Jorge Angeles	Cardou, P**.** and **Angeles, J**., *`Singularity analysis of accelerometer strapdowns for the estimation of the acceleration field of a planar rigid-body motion'*	Proc. of 12th IFToMM (International Federation for the Promotion of Mechanism and Machine Science) World Congress, in Besançon, France, June 18-21, 2007
2007	Jorge Angeles	Khan, W.A. and **Angeles, J.**, *The role of entropy in design theory and methodology*	Proc. CDEN (The Canadian Design Engineering Network)/ C2E2 (Canadian Congress on Engineering Education) 2007 Conference, Winnipeg, Alberta, July 22-24, 2007
2007	Jorge Angeles	Khan, W.A., Zhuang, H., and **Angeles, J.,** *RVS4W: A visualization tool for robot design*	Proc. CDEN (The Canadian Design Engineering Network)/ C2E2 (Canadian Congress on Engineering Education) 2007 Conference, Winnipeg, Alberta, July 22-24, 2007
2007	Jorge Angeles	Chen, C. and **Angeles, J.,** *Kinematic synthesis of an eight-bar linkage to visit eleven poses exactly*	Proc. CDEN (The Canadian Design Engineering Network)/ C2E2 (Canadian Congress on Engineering Education) 2007 Conference, Winnipeg, Alberta, July 22-24, 2007
2007	Jorge Angeles	Cardou, P. and **Angeles, J.,** *Simpletic architectures for true multi-axial accelerometers: a novel application of parallel robots*	Proceedings. Institute of Electric and Electronic Engineers International Conference on Robotics and Automation, (ICRA'07) Roma, Italy, April 10-14, 2007,
2007	Tal Arbel	Papers published: Catherine Laporte and **Tal Arbel,** *Combinatorial and Probabilistic Fusion of Noisy Correlation Measurements for Untracked Freehand 3D Ultrasound*	Accepted to Institute of Electrical and Electronics Engineers Transactions on Medical Imaging, 2008.
2007	Tal Arbel	Rupert Brooks, **Tal Arbel** and Doina Precup, *Anytime similarity measures for faster alignments*	Accepted to *Computer Vision and Image* Understanding, 2008.
2007	Tal Arbel	Rola Harmouche, D. Louis Collins, Douglas L. Arnold, Simon Francis and **Tal Arbel,** *Bayesian MS lesion classification based on regional spatial variability and neighbourhood information*	Accepted to *Medical Image Analysis,* 2007.
2007	Tal Arbel	Matthew Toews and **Tal Arbel,** *A Statistical Parts-based Model of Anatomical Variability*	Institute of Electrical and Electronics Engineers *Transactions on Medical Imaging*, Special Issue on Computational Neuroanatomy, Vol. 26(4), pp. 497-508, April 2007.
2008	Tal Arbel	Book chapter: Matthew Toews and **Tal Arbel,** *Parts-based Modeling of Medical Imagery*	Techniques and Applications, CRC Press, 2008.
2007	Tal Arbel	M. Toews, **T. Arbel,** *Detecting and Localizing 3D Object Classes using Viewpoint Invariant Reference Frames*	Proc. ICCV '07 (Eleventh International Conference on Computer Vision) Workshop on 3D Representation for Recognition (3dRR-07), Rio de Janeiro, BRAZIL, October 14 – 20, 2007.

Year	Name	Publication	Organisation
2007	Tal Arbel	M. Toews, **T. Arbel,** *Detecting, Localizing and Classifying Visual Traits from Arbitrary Viewpoints using Probabilistic Local Feature Modeling*	Proc. 2007 Institute of Electrical and Electronics Engineers International Workshop on Analysis and Modeling of Faces and Gestures (AMFG) in conjunction with the Eleventh IEEE International Conference on Computer Vision (ICCV '07), Rio de Janeiro, Brazil, October 14-20, 2007, Lecture Notes in Computer Science, Springer, Vol. 4778/2007, pp. 154-167.
2007	Tal Arbel	C. Laporte, **T. Arbel,** *Probabilistic speckle decorrelation for 3D ultrasound*	Proc. The 10th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI '07), part 1, pp. 925-932, Brisbane, AUSTRALIA, Oct. 29 – No 02, 2007,
2007	Tal Arbel	R. Brooks, **T. Arbel,** *The importance of scale when selecting pixels for image registration*	Proc. of the Fourth Canadian Conference on Computer and Robot Vision, pp. 235-242, Montreal, QC, Canada, May 28-30, 2007,
2007	Tal Arbel	C. Laporte, J. Clark, **T. Arbel,** *A fractal multi-dimensional ultrasound scatterer distribution model*	Proc. of the Institute of Electrical and Electronics Engineers International Symposium on Biomedical Imaging: From Nano to Macro, pp. 880-883, Washington D.C., U.S.A., Apr.12 – 15, 2007.
2007	Benoit Boulet	**B. Boulet** and Y. Duan, *The Fundamental Trade-off Between Performance and Robustness: A New Perspective on Loop-shaping*	Institute of Electrical and Electronics Engineers Control Systems Magazine, Vol. 27, No. 3, pp. 30-44, June 2007,.
2007	Benoit Boulet	D. Lalli, **B. Boulet,,** Y. Chen, Y. Duan, R. DiRaddo, *Cycle-to-Cycle Control of the Angioplasty Balloon Forming Process*	COMPMED,- A conference planned in cooperation with the Society for Simulation in Healthcare, Montreal, CANADA, May 16-18,2007.
2007	Benoit Boulet	Y. Chen, **B. Boulet,** P. Chen, M. Zhao, *Data Fusion based on RBF Neural Network for Error Compensation in Resistance Strain Gauge Force Transducers*	International Association for Computer & Information Science 8th International Conference on Software Engineering, Artificial Intelligence, Networking, and Parallel/Distributed Computing, pp. 86-91, Qingdao, CHINA, July 30 - August 1, 2007,
2007	Benoit Boulet	G. Gauthier, **B. Boulet,** *Design of a Terminal Iterative Learning Control with H-infinity Mixed Sensitivity Approach Applied on a Thermoforming Oven.*	Fifth International Conference on Industrial Automation, Montreal, CANADA, June 11-12, 2007.
2007	Peter E. Caines	Paper published: M. S. Shaikh and P**. E. Caines,** *On the Hybrid Optimal Control Problem: Theory and Algorithms*	Institute of Electrical and Electronics Engineers Trans on Automatic Control; Vol. 52. No. 9, pp 1587 – 1603, September, 2007,
2007	Peter E. Caines	M.Y. Huang, **P.E. Caines** and R.P. Malhame, *Large Population Cost-Coupled LQG Problems with Non-uniform Agents: Individual-Mass Behaviour and Decentralized epsilon - Nash Equilibria'*	Institute of Electrical and Electronics Engineers Trans. on Automatic Control; Vol. 52. No. 9, pp 1560 – 1571, September, 2007,

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2007	Peter E. Caines	M.Y. Huang, **P.E. Caines** and R.P. Malhame, *An Invariance Principle in Large Population Stochastic Dynamic Games*	Proc. The 6th International Workshop on Frontier Problems in Systems and Control, Optimization, Identification and Control on the Occasion of Han-Fu Chen's 70th Birthday.' Journal of Systems Science and Complexity, Vol. 20, pp 162 – 172, June, 2007,
2007	Peter E. Caines	H. Zhang, W Ge, W. S. Wong and **P. E. Caines,** *A Stochastic Approximation Approach to the Power Control Problem*	Institute of Electrical and Electronics Engineers Trans. on Communications, Vol 55, No. 5, pp 878 – 886, May, 2007,
2007	Peter E. Caines	**P.E. Caines,** *The Hybrid Bellman Equation and Optimality Zones for Regional Dynamics Systems*	Czech-French-German Conference on Optimization, Abstracts pp. 54, September, 17 – 21, 2007 Heidelberg, GERMANY
2007	Peter E. Caines	A. Schoellig, **P.E. Caines,** M. Egerstedt and R. Malhame. *A Hybrid Bellman Equation for Systems with Regional Dynamics*	Institute of Electrical and Electronics Engineers Conference on Decision and Control, pp. 3393 – 3398, New Orleans, LA, Dec. 12 - 14, 2007
2007	Peter E. Caines	M.Y. Huang, **P.E. Caines** and R.P. Malhame, *An Invariance Principle and Entry Adaptation in Large Population Stochastic Dynamic Games*	Institute of Electrical and Electronics Engineers Conference on Decision and Control, pp. 121 -126, New Orleans, LA, Dec. 12 - 14, 2007
2007	Peter E. Caines	Z. Ma, **P. E. Caines,** R. P. Malhame, *Distributed Control of Loss Networks Systems: Independent Sub-network Behaviour in Infinite Networks*	Institute of Electrical and Electronics Engineers Conference on Decision and Control, pp 4421 - 4426 New Orleans, LA, Dec. 12 – 14, 2007
2007	Peter E. Caines	Book Chapters: **P. Caines,** H. P. Wynn, *An Algebraic Framework for Bayes Nets of Time Series'*	Eds: A. Chiuso, A. Ferrante, and S. Pinzoni. Springer-Verlag, LNCIS 364, pp. 45 - 57, Pisa, ITALY, October 2007,
2007	Peter E. Caines	**P. E. Caines**, R. Deardon and H. P. Wynn, *Bayes Nets of Time Series: Stochastic Realisations and Projections*	H. P. Wynn Festschrift; Proceedings of the Workshop on Optimum Design and Related Statistical Issues; Juan Les Pins, France, May, 2005. Eds. L. Pronzato et. al., Springer, Berlin, 2007
2007	Peter E. Caines	**P. Caines,** M. Egerstedt, R. Malhame and A. Schoellig, *A Hybrid Bellman Equation for Bimodal Systems*	Hybrid Systems: Computation and Control, A. Bemporad, A. Bicchi, and G. Buttazzo. Springer-Verlag, LNCS 4416, pp. 656-659, Pisa, ITALY April 2007,
2008	James Joseph Clark	Jie, L. and **Clark, J.J.,** *Video Game Design Using an Eye Movement Dependent Model of Visual Attention*	Accepted for publication in the Association for Computing Machinery *Transactions on Multimedia Computing, Communications, and Applications*
2007	James Joseph Clark	Li, M. and **Clark, J.J.,** *Selective Attention in the Learning of Viewpoint and Position Invariance*	*Attention and Cognitive Systems,* L. Paletta and E. Rome, eds., */Lecture Notes in Artificial Intelligence/*, Vol. 4840, Springer, pp 263-276, 2007
2007	James Joseph Clark	**Clark, J.J.,** Hafed, Z. and Jie, L. *Attention and Action*	*Computational Vision in Neural and Machine Systems/*, L. Harris and M. Jenkin, eds. Cambridge University Press, Cambridge England, 2007

Year	Name	Publication	Organisation
2008	Jeremy Cooperstock	Benovoy, M., Deitcher, J., and **Cooperstock, J.R.**, *Biosignals Analysis and its Application in a Performance Setting: Towards the development of an Emotional-Imaging Generator,*	Institute of Electrical and Electronics Engineers International Conference on Bio-Inspired Systems and Signal Processing (BIOSIGNALS) Madeira, PORTUGAL, Jan. 28-31, 2008
2008	Jeremy Cooperstock	Visell, Y., **Cooperstock, J.R.**, and Franinovic, K., *Toward an Architectural Platform for Audio-Haptic Simulation in Walking Enactive Interfaces*	ENACTIVE'07, Grenoble, France, Nov. 19-25, 2007
	Jeremy Cooperstock	Visell, Y. and **Cooperstock, J.R.** *Enabling Gestural Interaction by Means of Tracking Dynamical Systems Models and Assistive Feedback*	Institute of Electrical and Electronics Engineers Systems, Man and Cybernetics, Montreal, CANADA, Oct. 7-10, 2007
2007	Jeremy Cooperstock	Qi, Z. and **Cooperstock, J.R.,** *Automated Change Detection in an Undersea Environment using a Statistical Background Model*	Oceans '07, Vancouver, CANADA, Sept. 29-Oct. 4, 2007
	Jeremy Cooperstock	Pelletier, S. and **Cooperstock, J.R.,** *Fast super-resolution for rational magnification factors.*	International Conference on Image Processing (ICIP), San Antonio, TX, USA, Sept. 16-19,
2007	Jeremy Cooperstock	Qi, Z. and **Cooperstock, J.R.**, *Overcoming Parallax and Sampling Density Issues in Image Mosaicing of Non-Planar Scenes*	British Machine Vision Conference (BMVC), Sept. 10-13, Warwick, UK
	Jeremy Cooperstock	**Cooperstock, J.R.,** Wozniewski, M., Settel, Z., *Towards mobile spatial audio for distributed musical systems and multi-user virtual environments.*	Spatial Audio for Mobile Devices, Workshop in conjunction with International Conference on Human Interaction with Mobile Devices and Services (MobileHCI), Singapore, Sept. 9, 2007
2007	Jeremy Cooperstock	Wozniewski, M., Settel, Z. **Cooperstock, J.R.**, *AudioScape: A Pure Data library for management of virtual environments and spatial audio*	PureData Convention, Montreal, CANADA, Aug. 21-26, 2007
	Jeremy Cooperstock	Audet, S. and **Cooperstock, J.R**., *Shadow Removal in Front Projection Environments using Object Tracking*	Institute of Electrical and Electronics Engineers International Workshop in Projector-Camera Systems (ProCams), Minneapolis, MN, USA, June 18,2007
2007	Jeremy Cooperstock	Visell, Y. and **Cooperstock, J.R.,** *Modeling and Continuous Sonification of Affordances for Gesture-Based Interfaces.*	International Conference on Auditory Display, Montreal, CANADA, June 26-29, 2007
2007	Jeremy Cooperstock	Wozniewski, M., Settel, Z. and **Cooperstock, J.R.,** *User-specific audio rendering and steerable sound for distributed virtual environments*	International Conference on Auditory Display, Montreal, CANADA, June 26-29, 2007
2007	Jeremy Cooperstock	Kinoe, Y. and **Cooperstock, J.R.,** *Peripheral Telecommunications: Supporting Distributed Awareness and Seamless Transitions to the Foreground.*	International Conference On Smart Homes and Health Telematics, Nara, JAPAN, June 21-23, 2007

Year	Name	Publication	Organisation
2008	Luca Cortelezzi	**Cortelezzi, L.,** Adrover, A. & Giona, M., *Feasibility, Efficiency and Transportability of Short-horizon Optimal Mixing Protocols*	*Journal of Fluid Mechanics*, v. 597, pp. 199 - 231, 2008
2008	Luca Cortelezzi	Tilton, N. & **Cortelezzi, L**., *Linear Stability Analysis of Pressure-driven Flows in Channels with Porous Walls*	*Journal of Fluid Mechanics*, v. 604, pp. 411 - 445, 2008
2007	Gregory Dudek	Junaed Sattar and **Gregory Dudek**, *Where is Your Dive Buddy: Tracking Humans Underwater using Spatio-temporal Features*	In Proceedings of Institute of Electrical and Electronics Engineers /Robotic Society of Japan Conference on Intelligent Robots and Systems (IROS), San Diego, October 29 – Nov 02, 2007.
2007	Gregory Dudek	Dimitri Marinakis, David Meger, Ioannis Rekleitis, and **Gregory Dudek** *Hybrid Inference for Sensor Network Localization using a Mobile Robot*	In Proceedings of the Association for the Advancement of Artificial Intelligence National Conference on Artificial Intelligence, Vancouver, Canada, July 22-26, 2007
2007	Gregory Dudek	**Gregory Dudek,** Dimitri Marinakis, *Topological Mapping with Weak Sensory Data*	In Proceedings of the Association for the Advancement of Artificial Intelligence National Conference on Artificial Intelligence, Vancouver, Canada, July 22-26, 2007
2007	Gregory Dudek	Dimitri Marinakis, Philippe Giguère, and Gregory Dudek *Learning Network Topology from Simple Sensor Data*	Proc. of the 4th Canadian Conference on Computer and Robot Vision, Montreal, Quebec, Canada. May 28 – 30, 2007.
2007	Gregory Dudek	Junaed Sattar, Eric Bourque, **Gregory Dudek**, and Philippe Giguère, Fourier *tags: Smoothly degradable fiducial markers for use in human-robot interaction.*	In the Proceedings of the Fourth Canadian Conference on Computer and Robot Vision, 2007, Montreal, Quebec, Canada. May 28 – 30, 2007.
2007	Gregory Dudek	**Gregory Dudek,** Junaed Sattar, Anqi Xu *A Visual Language for Robot Control and Programming: A Human-Interface Study*	In the Proceedings of International Conference of Robotics and Automation (ICRA) 2007, Rome, Italy, April 10-14, 2007, pages 2507-2513.
2007	Gregory Dudek	Dimitri Marinakis, **Gregory Dudek,** *Topological Mapping through Distributed, Passive Sensors*	Presented at the International Joint Conference on Artificial Intelligence (IJCAI), Hyderabad, India, January 2007.
2007	Gregory Dudek	**Gregory Dudek**, Philippe Giguère, Chris Prahacs, Shane Saunderson, Junaed Sattar, and Luz-Abril Torres-Mendez, McGill University; Michael Jenkin, Andrew German, Andrew Hogue, Arlene Ripsman, and Jim Zacher, York University; Evangelos Milios, Hui Liu, and Pifu Zhang, Dalhousie University; Martin Buehler, Boston Dynamics; Christina Georgiades, MathWorks; *Aqua: An Amphibious Autonomous Robot*	Institute of Electrical and Electronics Engineers *Computer Magazine*, Volume 40, Number 1, January 2007.
2007	Frank Ferrie	Benoit, Stephen, and **Ferrie, Frank, P.,** *Towards Direct Recovery of Shape and Motion Parameters from Image Sequences*	*Computer Vision and Image Understanding,* Vol. 105, pp. 145-165, 2007

Year	Name	Publication	Organisation
2007	Frank Ferrie	Begin, I., and **Ferrie, F.P.**, *PSF Recovery From Examples for Blind Super-Resolution*	Institute of Electrical and Electronics Engineers International Conference on Image Processing, San Antonio, Texas, September 16-19, 2007, V-421-V-424.
2007	Frank Ferrie	Wang, Ruisheng, Tao, Vincent, and **Ferrie, Frank P.**, *Non-Rigid Spave Resection by Parameterized Models*	7th International Workshop of Geographical Information Systems, Beijing, P.R. China, September 14-15, 2007, (to appear).
2007	Frank Ferrie	Abou-Moustafa, K., and **Ferrie, F.P.,** *A Robust Metric for Similarity Measures*	Proc. 29th Annual Symposium of the German Association for Pattern Recognition, Heidelberg, Germany, September 12th-14th, 2007
2007	Frank Ferrie	Begin, I., and **Ferrie, F.P.,** *Training Database Adequacy Analysis for Learning-Based Super-Resolution*	Proc. 4th Canadian Conference on Computer and Robot Vision, Montreal, Quebec, May 28-30, 2007, pp. 29-35
2008	Vincent Hayward	**Book Chapter: Hayward, V. 2008**. *Physically-Based Haptic Synthesis,*	Haptic Rendering: Foundations, Algorithms and Applications, T. M. A. Otaduy and M. Lin (Eds), Wellesley, MA: A K Peters, Ltd., 297-309.
2008	Vincent Hayward	**Hayward, V. 2008.** *Haptic Shape Cues, Invariants, Priors, and Interface Design*.	Human Haptic Perception - Basics and Applications, M. Grunwald (ed.), Birkhauser Verlag. In press
2008	Vincent Hayward	Levesque, V. and **Hayward, V.** 2008. *Tactile Graphics Rendering Using Three Laterotactile Drawing Primitives.*	Proc. Symposium on Haptic Interfaces For Virtual Environments And Teleoperator Systems, pp. 429-436. Reno, NV, USA, March 13 – 14, 2008
2008	Vincent Hayward	Campion, G., Gosline, A. H. and **Hayward, V.**. *Passive Viscous Haptic Textures.*	Proc. Symposium on Haptic Interfaces For Virtual Environments And Teleoperator Systems, pp. 379-380. Reno, NV, USA, March 13 – 14, 2008
2007	Vincent Hayward	Poster presented:.Carter, O., Konkle, T., Snyder, J., Wang, Q., **Hayward, V.,** Moore, C. and Nakayama, K. 2007. *Bi-stable tactile stimulus shows perceptual rivalry exists across the senses*	8th International Multisensory Research Forum, Sydney AUSTRALIA, July 5 – 7, 2007
2008	Vincent Hayward	MacLean, K. E. and **Hayward, V.** *Do It Yourself Haptics, Part-II*	Institute of Electrical and Electronics Engineers Robotics and Automation Magazine, 15(1): 104-114 2008.
2008	Vincent Hayward	**Hayward, V.** *A Brief Taxonomy of Tactile Illusions And Demonstrations That Can Be Done In a Hardware Store*	*Brain Research Bulletin*, 75:742-752.
2007	Vincent Hayward	**Hayward, V.** et K. E. MacLean, V. *Do It Yourself Haptics, Part-I*	Institute of Electrical and Electronics Engineers *Robotics and Automation Magazine*. 14(4): 88-104
2007	Vincent Hayward	Janabi-Sharifi, F., V. **Hayward, V.,** Wang, Q. Y.. *Design and implementation of a graphic-haptic display system*	*Displays,* 28:118-128. 2007
2007	Vincent Hayward	Pasquero, J., Luk, J., **Lévesque, V.,** Wang, Q., MacLean, K., Hayward, V. *Haptically Enabled Handheld Information Display with Distributed Tactile Transducer*	Institute of Electrical and Electronics Engineers *Transactions on Multimedia*, 9(4): 746-753. 2007.

Year	Name	Publication	Organisation
2007	Vincent Hayward	Wang, Q., **Hayward, V.** *In Vivo Biomechanics of the Fingerpad Skin Under Local Tangential Traction.*	*Journal of Biomechanics.* 40(4): 851-860.2007
2007	Jozsef Kövecses	Modarres Najafabadi, S.A., **Kövecses, J.** and Angeles J.: *Energy Analysis and Decoupling in Three-Dimensional Impacts of Multibody Systems*.	*ASME Journal of Applied Mechanics*, Vol. 74, pp. 845-851, September 2007.
2007	Jozsef Kövecses	**Kövecses, J.** and Angeles, J.: *The Stiffness Matrix in Elastically Articulated Rigid-Body Systems*	*Multibody System Dynamics*, Vol. 18, No. 2, pp. 169-184, 2007.
2007	Jozsef Kövecses	**Kövecses, J.,** *Kovács, L.L.* and Stépán,G. *Dynamics Modelling and Stability of Robotic Systems with Discrete-Time Force Control*.	*Archive of Applied Mechanics (Ingenieur Archiv)*, Vol. 77, No. 5, pp. 293-299, May 2007.
2007	Jozsef Kövecses	Modarres Najafabadi, S.A., **Kövecses, J.** and Angeles, J.: *An Energy-Based Approach to the Dynamics of Impacts in Unilaterally-Constrained Multibody Systems*	2007 American Society of Mechanical Engineers International Design Engineering Technical Conferences, 6th International Conference on Multibody Systems, Non-linear Dynamics, and Control, Paper #:DETC2007-35736, Las Vegas, Nevada, Sep. 4-7, 2007.
2007	Jozsef Kövecses	Wong, P.F., **Kövecses, J.,** Lange, C. and Gonthier, Y.: *Dynamics Simulation of Space Robotic Systems: Algorithms, Validation and Benchmarking.*	2007 European Community on Computational Methods in Applied Sciences (Eccomas) Thematic Conference on Multibody Dynamics, pp. 168-169, Milan, Italy, June 25-28, 2007.
2007	Jozsef Kövecses	Meshreki, M., **Kövecses, J.**, and Attia, H.: *Model Formulation for the Dynamics of Thin-Walled Aerospace Structures in High-Speed Machining*	2007 European Community on Computational Methods in Applied Sciences (Eccomas) Thematic Conference on Multibody Dynamics, pp. 306-307, Milan, Italy, June 25-28, 2007
2007	Jozsef Kövecses	Modarres Najafabadi, S.A., **Kövecses, J.,** and Angeles, J.: *Dynamic Analysis of Multiple-Point Impacts in Multibody Systems*.	2007 European Community on Computational Methods in Applied Sciences (Eccomas) Thematic Conference on Multibody Dynamics, pp. 419-420, Milan, Italy, June 25-28, 2007.
2007	Jozsef Kövecses	Modarres Najafabadi, S.A., **Kövecses, J.**, and Angeles, J.: *Energy Analysis of Contacts in Multibody Systems: A Novel Interpretation of the Energetic Coefficient of Restitution*.	12th International Federation for the Promotion of Mechanism and Machine Science (IFToMM) World Congress on Mechanism and Machine Science, Paper #: 840, Besançon, France, June 17-21, 2007.
2007	Jozsef Kövecses	*Kovács, L.L.*, Stépán, G., and **Kövecses, J**.: *Stability and Optimization Aspects of Slightly Damped Oscillatory Systems with Digital Force Control.*	12th International Federation for the Promotion of Mechanism and Machine Science (IFToMM) World Congress on Mechanism and Machine Science Paper #: 808, Besançon, France, June 17-21, 2007.
2007	Jozsef Kövecses	Modarres Najafabadi, *S.A.*, **Kövecses, J.** and Angeles, J.: *An Energy Approach to Dynamics Analysis of Impacts in Multibody Systems*.	21st Canadian Congress of Applied Mechanics, pp. 583-584, Toronto, Ontario, June 3 - June 7, 2007.

Year	Name	Publication	Organisation
2007	Jozsef Kövecses	**Kövecses, J.**: *Development and Teaching of a Course on Mechanisms for Mechanical Engineering Students at the Undergraduate Level.*	21st Canadian Congress of Applied Mechanics, p. 116, Toronto, Ontario, June 3 - June 7, 2007.
2007	Jozsef Kövecses	Lange, C., **Kövecses, J.**, and Gonthier, Y.: *Benchmarking of Multibody System Simulations: Points to Consider*.	2007Canadian Committee for the Theory of Machines and Mechanisms (CcToMM) Symposium on Mechanisms, Machines, and Mechatronics, Paper #: CCToMM07-N08, Saint-Hubert, Quebéc, May 31 - June 1, 2007.
2007	Jozsef Kövecses	Modarres Najafabadi, S.A., **Kövecses, J.**, and Angeles, J.: *A Novel Approach to Dynamics Analysis of Multiple-Point Impacts Involving Multibody Systems*.	2007Canadian Committee for the Theory of Machines and Mechanisms (CcToMM) Symposium on Mechanisms, Machines, and Mechatronics, Paper #: CCToMM07-N09, Saint-Hubert, Quebéc, May 31 - June 1, 2007
2007	Michael Langer	McCloskey, S., **Langer M.S.,** and Siddiqi, K. *Evolving Measurement Regions for Depth from Defocus*	8th Asian Conference on Computer Vision, pp. 858-868, Tokyo JAPAN, Nov 18 - 22, 2007
2007	Michael Langer	McCloskey, S., **Langer, M.S.,** and Siddiqi. K., *Automatic Removal of Partial Occlusion Blur*	8th Asian Conference on Computer Vision, pp. 271-282, Tokyo JAPAN, Nov 18 - 22, 2007
2007	Michael Langer	Couture, V, **Langer, M.S.,** Caine, A., and Mann, R. *Two-frame Frequency-based Estimation of Local-motion Parallax Direction in 3-D cluttered Scenes*	6th International Conference on 3-D Digital Imaging and Modeling, pp.357-364, Montreal QC CANADA, Aug 21 – 23, 2007
2007	Michael Langer	Couture, V., and **Langer, M.S.,** *Can Lucas-Kanade be used to compute Motion Parallax in 3-D cluttered scenes.*	4th Canadian Conference on Computer and Robot Vision , pp.63-70, Montreal QC, CANADA, 28 – 30th May , 2007
2007	Martin Levine	Gurman Gill and **Martin D. Levine,** A Single Classifier for View-invariant Multiple Object Class Recognition	British Machine Vision Conference Univ. of Warwick UK, 10th –13th Sep. 2007.,
2007	Martin Levine	Bhavin J. Shastri and **Martin D. Levine**, *Face Recognition using Localized Features based on Non-negative Sparse Coding*	Machine Vision and Applications, Vol 18, No.2 pp. 107-122 April 2007
2007	Martin Levine	Samuel Kadoury and **Martin D. Levine,** *Face Detection in Gray Scale Images using Locally Linear Embeddings*	Computer Vision and Image Processing, vol. 105, Issue 1, pp.1 – 20, Jan 2007
2007	Shie Mannor	**S.Mannor,** D. Simester**,** P.Sun and J.N. Tsitsiklis, *Biases and Variance in Value Function Estimates*	Management Science 53 (2) pp 308-322, 2007
2007	Shie Mannor	**S.Mannor**, J. Shamma, and G. Arslan, *Calibrated Forecasts: Efficiency versus Universality*	Machine Learning Journal, 67(2) pp. 77-115, 2007
2007	Shie Mannor	C. Caramanis and **S. Mannor,** *An Inequality for nearly Log-concave Distributions with Applications to Learning*	Institute of Electrical and Electronics Engineers Transactions on Information Theory, 53 (3) pp 1043-1057, 2007
2007	Shie Mannor	**S. Mannor**, and J. Shamma, *Multi-agent Learning for Engineers*	Artificial Intelligence, 171 (7) pp.417-422, 2007

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2007	Shie Mannor	J.Y. Yu and **S. Mannor,** *Asymptotics of Efficiency Loss in Competitive Market Mechanisms*	Institute of Electrical and Electronics Engineers Journal on Selected Areas in Communications 25:6, pp.1244-1259
2007	Shie Mannor	B. Châtelaine, S. Mannor, F. Gagnon and D.V. Plant. *Non-cooperative Design of Translucent Networks*	Institute of Electrical and Electronics Engineer Global Communications Conference (GLOBECOM 2007) Washington D.C, 26-30 Nov. 2007
2007	Shie Mannor	X. Huan and **S. Mannor,** *A Kalman Filter Design Based on the Performance Robustness Trade-off*	45th Annual Allerton Conference on Communication, Control, and Computing, Allerton House, Il USA, 26 – 28 Sep, 2007
2007	Hannah Michalska	D. Dionne, **H. Michalska,** C.A. Rabbath, *Predictive Guidance for Pursuit-Evasion Engagements Involving Multiple Decoys*	Journal of Guidance, Control and Dynamics, 0731 – 5090, vol 30, no.5 pp.1277 – 1286, 2007
2007	Hannah Michalska	Nasrallah, D., **Michalska, H.,** Angeles, J., *Controllability and Posture Control of a Wheeled Pendulum Moving on an Inclined kPlane*	Institute of Electric and Electronic Engineers Transactions on Robotics, Vol. 23, No.3, pp.564-577, 2007
2007	Hannah Michalska	Ahmadi, M., **Michalska, H**., Buehler, M., *Control and Stability Analysis of Limit Cycles in a Hopping Robot*	Institute of Electrical and Electronics Engineers, Transactions on Robotics, Vol. 23, No4, 2007
2007	Hannah Michalska	Poster presented: M. Hadzagic, E. Lefebvre, **H. Michalska,** On Data Fusion Challenges and Architectures in maritime Surveillance	REPARTI Colloquium in Distributed Intelligent Systems, McGill University May 31, 2007
2007	Meyer Nahon	O. Chiu, **M. Nahon** and N. Plamondon, *Stability Augmentation for a Hexapod Underwater Vehicle*	UUST'07, (Unmanned Untethered Submersible Technology Symposium) Durham, NH, USA, Aug. 19-22, 2007
2007	Meyer Nahon	N. Plamondon and **M. Nahon,** *Modeling and Control of an Underwater Biomimetic Robot*	UUST'07, (Unmanned Untethered Submersible Technology Symposium) Durham, NH, USA, Aug. 19-22, 2007
2007	Meyer Nahon	G. Stante, **M. Nahon** and C. Williams, *Simulation of an Underwater Glider*	UUST'07, (Unmanned Untethered Submersible Technology Symposium) Durham, NH, USA, Aug. 19-22, 2007
2007	Meyer Nahon	N. Plamondon and **M. Nahon,** *A Flexible Oscillating Foil model for an Underwater Autonomous Underwater Vehicle*	CANCAM (21st Canadian Congress of Applied Mechanics) 2007, Toronto, CANADA, June 3-7, 2007.
2007	Meyer Nahon	A. Howard and **M. Nahon,** *Experimental Testing and Simulation of an Aerostat with Actuated Tail Fins*	Association for the Advancement of Artificial Intelligence Balloon Systems Conference, Williamsburg, Virginia, May 21-24, 2007
2007	Meyer Nahon	Y. Li, **M. Nahon** and I. Sharf, *Dynamics Modelling of Flexible Airships*	AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, Honolulu, Hawaii, April 23-26, 2007.
2007	Inna Sharf	Robert, J., and **I. Sharf,** *Autonomous Capture of Free-floating Objects using Predictive Approach*	Proc. 58th International Astronautical Congress, IAC-07—C1.2.07, pp. 1-15,, Hyderabad, India, Sep 24- 28, 2007.
2007	Inna Sharf	Cowan, D. and **I Sharf,** *Dynamics Modelling and Simulation of Mars Rover*	Proc. 58th International Astronautical Congress, IAC-07-A5.2.08, pp1-13, Hyderabad, India Sep 24- 28, 2007

Year	Name	Publication	Organisation
2007	Inna Sharf	Zhang Y. and I **Sharf,** *Experimental Validation of Non liner Compliant Contact Force Models*	Proc. American Society of Mechanical Engineers International Design Engineering Technical Conferences & Computers and Information in Engineering Conference DECT2007-3498, pp1-11, La Vegas NV, Sep 4 – 7, 2007
2007	Inna Sharf	Mu, X. and **I Sharf,** *Non-linear Contact Parameter Estimation for Robotic Systems with Payload*	Proc. American Society of Mechanical Engineers International Design Engineering Technical Conferences & Computers and Information in Engineering Conference DECT2007-35391, pp1-10, La Vegas NV, Sep 4 – 7, 2007
2007	Inna Sharf	Li, Y., M. Nahon and **I. Sharf,** *Dynamics Modelling of Flexible Airships*	Proc. AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, AIASA-2007 – 2212, pp1-27, Honolulu, Hawaii, April 23-26, 2007.
2007	Inna Sharf	Poster presented: Faragalli, M. and **I Sharf,** *Intelligent Control of a Hybrid Quadruped Galloping Robot*	PRECARN 17th Annual Canadian Conference on Intelligent Systems, May 2007, Montreal
2008	Kaleem Siddiqi	P. Savadjiev, J. S. W. Campbell, M. Descoteaux, R. Deriche, G. B. Pike and **K. Siddiqi,** *Labelling of Ambiguous Sub-voxel Fibre Bundle Configurations in High Angular Resolution Diffusion MRI*	To appear, *Neuroimage,* 2008. PDF © 2008 by Elsevier.
2008	Kaleem Siddiqi	M. Descoteaux, L. Collins and **K. Siddiqi,** *A Multi-Scale Geometric Flow for Segmenting Vasculature in MRI: Theory and Validation.*	To appear, *Medical Image Analysis*, 2008. PDF © 2008 by Elsevier.
2007	Kaleem Siddiqi	**K. Siddiqi,** J. Zhang, D. Macrini, A..Shokoufandeh, S. Bouix & S. Dickinson, *Retrieving Articulated 3D Models Using Medial Surfaces*	T appear, *Machine Vision and Applications,* 2007. PDF © 2007 by Springer
2007	Kaleem Siddiqi	I. Reinertsen, M. Descoteaux, **K. Siddiqi** and D. L. Collins, *Validation of Vessel-Based Registration for Correction of Brain Shift.*	*Medical Image Analysis,* 11, 374-388, 2007. PDF © 2007 by Elsevier.
2008	Kaleem Siddiqi	D. Macrini, **K. Siddiqi** and S. Dickinson, *From Skeletons to Bone Graphs: Medial Abstraction for Object Recognition.*	Institute of Electrical and Electronics Engineers International Conference On Computer Vision and Pattern Recognition, Anchorage, Alaska, USA, [PDF] © 2008 by IEEE. June 24 – 26, 2008.
2007	Kaleem Siddiqi	S. McCloskey, M. Langer and **K. Siddiqi,** *Evolving Measurement Regions for Depth from Defocus*	8th Asian Conference on Computer Vision [PDF] © 2007 by Springer-Verlag, Kyoto, JAPAN, Nov 18 – 22, 2007
2007	Kaleem Siddiqi	S. McCloskey, M. Langer and **K. Siddiqi,** *Automatic Removal of Partial Occlusion Blur*	8th Asian Conference on Computer Vision [PDF] © 2007 by Springer-Verlag, Kyoto, JAPAN, Nov 18 – 22, 2007
2007	Kaleem Siddiqi	P. Savadjiev, S. W. Zucker and **K. Siddiqi,** *On the Differential Geometry of 3D Flow Patterns: Generalized Helicoids and Diffusion MRI Analysis*.	Institute of Electrical and Electronics Engineers International Conference on Computer Vision, [PDF] © 2007 by IEEE, Rio de Janeiro, BRAZIL, October 14 – 20, 2007.

Year	Name	Publication	Organisation
2008	Paul Zsombor-Murray	**Zsombor-Murray, P.J.**, *Geometric Approach to the Accuracy Analysis of a Class of 3-DOF Planar Parallel Robots*	Journal *Mechanism & Machine Theory,* Elsevier, v.43, n.3, pp.365-375
2007	Paul Zsombor-Murray	St-Pierre, L. and **Zsombor-Murray, P.J.,** *Singularities in Redundant 4R Positioning Manipulators*	Canadian Society for Mechanical Engineering *Transactions v.31, n.4, pp.373-390.*
2007	Paul Zsombor-Murray	**Zsombor-Murray, P.J.** *Platonic Symmetry and Geometric Thinking'*	*Engineering Design Graphics Journal*, v.71, n.3, and pp.20-24.
2007	Paul Zsombor-Murray	Harker, M., O'Leary, P. and **Zsombor-Murray, P.J.,** *Direct Image-Specific Conic Fitting and Eigenvalue Bias Correction*	*Image & Vision Computing*, 10pp.
2007	Paul Zsombor-Murray	**Zsombor-Murray, P.J**. and El Fashny, S., A *Cylinder of Revolution on Five Points*	*Journal for Geometry and Graphics*, v.10, n.2, pp.125-131.
2008	Paul Zsombor-Murray	**Zsombor-Murray, P.J.** and Chen, C., *Degree of Freedom Parallel Manipulators and the Burmester Problem*	Proc. International Federation for the Promotion of Mechanism and Machine Science (IFToMM) 12th World Congress in Mechanism and Machine Science, 5pp. Besancon, FRANCE, June 17-21, 2007
2007	Paul Zsombor-Murray	St-Pierre, L. and **Zsombor-Murray, P.J.,** *Singularities of a Redundant 4R Positioning Manipulator*	Proc. Canadian Committee for the Theory of Machines and Mechanisms Symposium on Mechanisms, Machines and Mechatronics, (2007 CCToMM M^3 Symposium) 10pp, St-Hubert, QC, CANADA, May 31- June 01, 2007

LIST OF PUBLICATIONS: ASSOCIATES

Year	Name	Publication	Organisation
2007	Louis Collins	I. Reinertsen, M. Descoteaux, K. Siddiqi, and **D.L. Collins**, *Validation of Vessel-based Registration for Correction of Brain-shift*	Medical Image Analysis, vol. 11, pp. 374-88, 2007
2007	Louis Collins	I. Reinertsen, F. Lindseth, G. Unsgaard, and **D.L. Collins,** *Clinical Validation of Vessel-based Registration for Correction of Brain-shift*	Medical Image Analysis, 2007
2007	Louis Collins	N.E. van Haren, H.E. Hulshoff Pol, H.G. Schnack, W. Cahn, R.C. Mandl, **D.L. Collins**, A.C. Evans, and R.S. Kahn, *Focal Gray Matter Changes in Schizophrenia across the course of the Illness: A 5-year Follow-up, Study*	Neuropsychopharmacology, vol. 32, no.10, pp. 2057-66, 2007
2007	Louis Collins	F. Tomaiuolo, M. Scapin, M. Di Paola, P. Le Nezet, L. Fadda, M. Musicco, C. Caltagirone, and **D.L. Collins,** *Gross Anatomy of the Corpus Callosum in Alzheimer's Disease: Regions of Degeneration and their Neuro-psychological Correlates*	Dementia and Geriatric Cognitive Disorders, vol. 23, no.2, pp. 96-103, 2007
2007	Louis Collins	W. Li, I. Kezele, **D.L. Collins,** A. Zijdenbos, J. Keyak, J. Kornak, A. Koyama, I Saeed, A. Leblanc, T. Harris, Y. Lu, and T. Lang, *Voxel-based Modelling and Quantification of the Proximal Femur using Inter-subject Registration of Quantitative Ct Images*	Bone, vol. 42, no.5, pp. 888-95, 2007
2007	Louis Collins	I.B. Kezele, J. T. Chen, D L. Arnold, and **D. L. Collins,** *The Relation of Focal White Matter Signal Abnormality and focal Volume Loss in multiple Sclerosis*	Multiple Sclerosis, vo13, no.6, pp. 809-13, 2007
2007	Louis Collins	S. Hu, and **D. L. Collins,** *Joint-level Set Modelling and Appearance Modelling for Brain Structure Segmentation*	NeuroImage, vol. 36, no. 3, pp. 672-83, 2007
2007	Louis Collins	E. Heath, **D. L. Collins**, P.J. Keall, L. Dong, and J. Seuntjens, *Quantification of Accuracy of the Automated Non-linear Registration Algorithm for 4d Ct Images of Non-linear Image Matching and Anatomical Labelling (Animal) Non-linear Registration Algorithm for 4d Ct Images of Lung*	Journal of Medical Physics, vol. 34, no.11, pp. 4409-21, 2007
2007	Louis Collins	J.T. Chen, T. Kuhlmann, G.H. Jansen, **D. L. Collins**, H.L. Atkins, M.S. Freedman, P.W. O'Connor, and D.L. Arnold, *Voxel-based Analysis of the Evolution of Magnetization Transfer Ratio to Quantify Re-myelination and De-myelination with Histo-pathological Validation in a Multiple Sclerosis Lesion*	NeuroImage, vol.36, no.4, pp. 1152-8, 2007
2007	Xue Liu	Wang, Q. **Liu, X.,** Chen, W. Sha, L., and Caccamo, M., *Building robust Wireless LAN for Industrial Control with DSS-CDMA Cell-phone Network Paradigm*	Institute of Electrical and Electronics Engineers Transactions on Mobile Computing, TMC, v.6, pp.706-719, 2007

Year	Name	Publication	Organisation
2007	Xue Liu	Horvath, T. Abdelzaher, T. Skadron, K., and **Liu, X.,** *Dynamic Voltage Scaling in Multi-tier Web Servers with End-to-end, Delay Control*	Institute of Electrical and Electronics Engineers Transactions on Computers. V. 56, pp. 444-458, 2007
2007	Xue Liu	Chen, Y. Iyer, S., **Liu, X.,** Milojicic D., and Sahai, A., *SLA Decomposition: Translating Service-level Objectives to System-level Thresholds*	The 4th Institute of Electrical and Electronics Engineers International Conference on Autonomic Computing (ICAC'07), pp.310-310, Jacksonville FL, USA, 11th – 15th, June 2007
2007	Xue Liu	He, W., **Liu X.** Nguyen, H., Nahrstedt, K., and Abdelzaher, T. *Pda: Privacy-preserving Data Aggregation in Wireless Sensor Networks*	26 Annual Institute of Electrical and Electronics Engineers Conference on Computer Communications (INFOCOM 2007), pp.2045 – 2053, Anchorage AK, USA, May 6th – 12th, 2007
2007	Xue Liu	Heo, J., Henriksson, D., **Liu, X.,** and Abdelzaher, T., *Integrating Adaptive Components: An Emerging Challenge in Performance-adaptive Systems and a Server Farm Case-study*	28th Institute of Electrical and Electronics Engineers Real-Time Systems Symposium (RTSS'07), pp. 227-238, Tucson AZ, Dec 3 – 6, 2007
2007	Xue Liu	Hu, J., Morbini, F., Weng, F., and **Liu, X.**, *Dynamic n-best Selection and its Application in Dialog Act Detection*	The 8th SIGDial Workshop on Discourse and Dialogue (SIGDIAL 2007) pp. 59-62,Antwerp BELGIUM, 2-3 Sep, 2007
2007	Xue Liu	Huang, C. Abdelzaher, T. and **Liu X.**, *On Dominating Set Allocation Policies in Real-time Wide-area Distributed Systems*	The 19th Euromicro Conference on Real-time Systems (ECRTS'07), pp. 223-234, Pisa, ITALY, 4 – 6th July 2007
2007	Xue Liu	**Liu, X.** and He, W., *Active Queue Management Design using Discrete-event Control*	46th Institute of Electrical and Electronics Engineers Conference on Decision and Control (CDC'07), pp. 3806 – 3811, New Orleans, LA 12 – 14th Dec, 2007
2007	Xue Liu	**Liu, X.,** and He, W, *Control Computing Systems as Queuing Systems: The Case of optimal Dropping Strategy for Internet Routers*	Second Institute of Electrical and Electronics Engineers International Workshop on Feedback Control Implementation and Design in Computing Systems and Networks (FeBID 2007), Munich 25th May, 2007
2007	Xue Liu	**Liu, X.** Zhu, X Padala, P., Wang, Z., and Singhal. S. *Optimal Multivariate Control for Differentiated Services on a Shared Hosting Platform*	46th Institute of Electrical and Electronics Engineers Conference on Decision and Control (CDC'07), pp. 3792-3799, New Orleans, LA 12 – 14th Dec, 2007
2007`	Xue Liu	Wang, Q., L**iu, X.,** Hou, J., and Sha, L. *Gd-aggregate: A Wan Virtual Topology Building Tool for Hard Real-time and Embedded Applications*	28th Institute of Electrical and Electronics Engineers Real-Time Systems Symposium (RTSS'07), Tucson AZ, Dec 3 – 6, 2007
2007	Xue Liu	Wang, Z., **Liu, X.,** Zhang, A., Stewart, C., Zhu, X., Kelly, T., and Singhal, S. *Autoparam: Automated Control of Application –level Performance in Virtualized Server Environments*	Second Institute of Electrical and Electronics Engineers International Workshop on Feedback Control Implementation and Design in Computing Systems and Networks (FeBID 2007), Munich 25th May, 2007
2007	Xue Liu	Xu, Z., Dai, G., Zhang, G., **Liu, X.,** and Yang D. *A Lightweight Secure Routing Algorithm for Adhoc Networks with Free-space Optics*	Society of Photographic Instrumentation Engineers v. 9795, pp. 679514.1 – 679514.6, 2007

Year	Name	Publication	Organisation
2007	Arun Misra	Cohen, S. S., and **Misra, A.K.**, *Elastic Oscillations of the Space Elevator Ribbon*	Journal of Guidance, Control and Dynamics, Vol. 30, No. 299, pp.1711 – 1717, 2007
2007	Arun Misra	Karagiozis, K.N., Paidoussis, M.P., and **Misra. A.K.**, *Transmural Pressure Effects on the Stability of Clamped Cylindrical Shells Subjected to Internal Fluid Flow: Theory and Experiments*	International Journal of Non-Linear Mechanics. Vol 42, pp.13 – 23, 2007
2007	Arun Misra	Mateescu, D., Han, Yong and **Misra, A.K**., *Dynamics of Structures with Piezoelectric Sensors and Actuators for Structural Health Monitoring*	Key Engineering Materials, Vol. 347, pp.493-498
2007	Arun Misra	Gosselin, F., Paidoussis, M.P. and **Misra, A.K.,** *Stability of a Deploying/Extruding Beam in Dense Fluid*	Journal of Sound and Vibration, Vol. 299, pp 123 – 142, 2007
2007	Arun Misra	Gosselin, F., Paidoussis, M.P. and **Misra, A.K.,** *Stability of a Deploying/Extruding Beam in Dense Fluid*	Proc. of the 7th International Conference on Damage Assessment of Structures, DAMAS 2007, pp.1 – 6, Torino, ITALY, 25 – 27th June, 2007,
2007	Arun Misra	Cohen, S. and **Misra, A.K.**, *Effects of Climber Transit on the Space Elevator Dynamics*	58th International Astronautical Congress (IAC2007), Paper No. IAC-07-D4.1.04, Hyderabad, INDIA, September
2007	Arun Misra	Mateescu, D. Han, Y., and **Misra, A.K.**, *Analysis of Smart Structures with Piezoelectric Strips Subjected to Unsteady, Aerodynamic Loads*	48th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference, paper No. AIAA 2007-2001, Honolulu, Hawaii, USA, 23rd- 26th April, 2007
2007	Arun Misra	**Misra, A.K.,** and Cohen, S., *Elastic Oscillations of Space Tethers and the Space Elevator*	8th International Conference on Vibration Problems (ICOVP-2007), Howrah, Kolkata, INDIA, Jan 30th – Feb 3rd, 2007,
2007	Rosaire Mongrain	Nagano, N., Cartier, R., Zigras, T., **Mongrain, R.**, Leask R., *Mechanical Properties and Microscopic Findings of a Dacron Graft Explanted 27 years after Coarctation Repair*	The Journal of Thoracic and Cardiovascular Surgery 134(4), 2007
2007	Rosaire Mongrain	**Mongrain, R**. Faik, I., Leask, R., Bulman-Fleming, N., Bertrand, O.F., *Effects of Diffusion coefficients and Struts Apposition using numerical Simulations for Drug Eluting Coronary Stents*	American Society of Mechanical Engineers journal of Biomechanical Engineering, Vol 129, pp. 733-742, 2007
2007	Rosaire Mongrain	Fromageau, J., Gernisson, J.L., Schmitt, C., Maurice, R., **Mongrain, R.**, Cloutier, G., *Estimation of Polyvinyl Alcohol Cryogel Mechanical Properties with Four Ultrasound Elastography Methods and Comparison with Gold-standard Testing*	Institute of Electric and Electronic Engineers Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 54(3): pp.498-511, 2007
2007	Rosaire Mongrain	Faik, I., Mongrain, R., Bertrand, O.F. *Characterization of the Hemodynamic Parameters in a Stented Coronary Artery*	Biomedical materials, 2: S28-S37, 2007
2007	Rosaire Mongrain	Galaz, R., **Mongrain, R**., Pazos, V., Leask, R., Tardif, J-C., *Transient Fluid-Structure Interaction Computational Analyses to Assess patient-specific Atherosclerotic Plaque Vulnerability*	Proc. of the Symposium on Computer Simulation in Medicine (CompMed 2007, Montreal, QC, CANADA, May 16th – 18th 2007,

Year	Name	Publication	Organisation
2007	Rosaire Mongrain	Galaz, R., **Mongrain, R**., Pazos, V., Leask, R., Tardif, J-C., *Computational Sensitivity Analyses to Assess Atherosclerotic Plaque Vulnerability*	Proc. of the 21st Canadian Congress of Applied Mechanics, Toronto, ON, CANADA, June 3rd-7th, 2007
2007	Rosaire Mongrain	Tremblay, D., Cartier, R., Leduc, L., **Mongrain, R.**, Leask, R., *Circumferential Variation of Mechanical Properties of Ascending Aorta: A Comparative Study of Healthy and Dilated Aorta*	Proc. of the American Society of Mechanical Engineers, 2007 Summer Bioengineering Conference (SBC2007) p.37, Keystone CO, USA, June 20th – 24th, 2007
2007	Rosaire Mongrain	Zigras, T., Nagano, N., Rouleau, L., Tremblay, D., **Mongrain, R.**, Leask, R., *Biaxial Testing of Human Pericardium: A Comparative Study of Fixed and Fresh Tissue*	Proc. of the American Society of Mechanical Engineers, 2007 Summer Bioengineering Conference (SBC2007) p.19, Keystone CO, USA, June 20th – 24th, 2007
2007	Rosaire Mongrain	Galaz R., **Mongrain, R.**, Pazos, V., Leask, R., Tardif, J-C., *Computational Analysis of Atherosclerotic Plaque Vulnerability due to Hemodynamic Effects*	Proc. of the American Society of Mechanical Engineers, 2007 Summer Bioengineering Conference (SBC2007) p.45, Keystone CO, USA, June 20th – 24th, 2007
2007	Rosaire Mongrain	Ruzzeh, B., **Mongrain, R**., Leask, R., Bertrand, O, *Evaluation of the Effect of Stent Strut Profile on Shear Stress Distribution*	Proc. of the American Society of Mechanical Engineers, 2007 Summer Bioengineering Conference (SBC2007) Keystone CO, USA, June 20th – 24th, 2007
2007	Rosaire Mongrain	Pazos, V., Tardif, J-C., **Mongrain, R.,** *Gel-based Mechanical Phantom of Stenotic Coronary Artery*	Proc. of the American Society of Mechanical Engineers, 2007 Summer Bioengineering Conference (SBC2007) Keystone CO, USA, June 20th – 24th, 2007
2007	Rosaire Mongrain	L. Rouleau, L. Farcas, M., Tardif, J-C., **Mongrain, R.,** Leask, R., *Effects of Steady Spatial Wall Shear Stress Gradients on Endothelial Cell Morphology in Three-dimensional Models*	Proc. of the American Society of Mechanical Engineers, 2007 Summer Bioengineering Conference (SBC2007) Keystone CO, USA, June 20th – 24th, 2007
2007	Rosaire Mongrain	Drapeau, G., **Mongrain, R.,** Mejia, J., Rodes-Cabau, J., Bertrand, O.F., *CFD Comparative Study of a Flat Versus a Cylindrical Stent Configuration for PIV Investigations of Stents Influence on Local Hemodynamics*	Proc. of the 30th Canadian Medical and Biological Engineering Conference (CMBEC30) in the Festival of International Conference on Caregiving, Disability, Aging and Technology, (FICCDAT) Toronto, On, CANADA, June 16th –19th, 2007
2007	Rosaire Mongrain	Hong, E. **Mongrain, R.,** Rodes-Cabau, J., Bertrand, J-C., *Fluid Structure Interaction Numerical Simulation of Serial Pulmonary Stenoses*	Proc. of the 30th Canadian Medical and Biological Engineering Conference (CMBEC30) in the Festival of International Conference on Caregiving, Disability, Aging and Technology, (FICCDAT) Toronto, On, CANADA, June 16th –19th, 2007

Year	Name	Publication	Organisation
2007	Rosaire Mongrain	Chu, B., **Mongrain, R.**, Leask, R., Bertrand, O.F., *Stented Coronary Artery Phantom for Particle Image Velocimetry*	Proc. of the 30th Canadian Medical and Biological Engineering Conference (CMBEC30) in the Festival of International Conference on Caregiving, Disability, Aging and Technology, (FICCDAT) Toronto, On, CANADA, June 16th –19th, 2007
2007	Rosaire Mongrain	Ranga, A. **Mongrain R.,** Biadialah, Y., Cartier, R., *A Compliant Dynamic FEA Model of the Aortic Valve*	Proc. of The International Federation for the Promotion of Mechanism and Machine Science (IFToMM2007) The 12th World Congress in Mechanism and Machine Science, Besançon FRANCE, June 17th –21st, 2007
2007	Rosaire Mongrain	Galaz, R., **Mongrain, R.,** Leask, R., Pazos, V., Tardif, J-C., *Patient-specific Plaque Vulnerability Analyses Based on 3-D Computer Models of the Mechanical Interaction Between Hemodynamics and Plaque Constituents*	Proc. of the Canadian Cardiovascular Congress, (abstract # 69) p.32, Quebec, QC, CANADA, 20th – 24th 2007,
2007	Rosaire Mongrain	Galaz, R., Mongrain, R., *Interaccion fluido estructura y biomecanica de tejidos,*	III Symposium internacional de ingenieria, Monterrey, Mexico, 3-10 Nov, 2007,
2007	Rosaire Mongrain	Drapeau, G., Mejia, J., **Mongrain, R.,** *fluid Dynamics of Stents: Flat vs. cylindrical Configurations*	Xième Journée de la recherche, Institut de Cardiologie, Montreal May, 2007
2007	Rosaire Mongrain	Pazos, V., **Mongrain, R.,** Tardif, J-C., *Developpement d'un phantome d'artère coronaire stenosée*	Xième Journée de la recherche, Institut de Cardiologie, Montreal May, 2007
2007	Wissam Musallam	R. Sarpeshakr, W. Wattanapanitch, B.I. Rapaport, S.K. Arfin, M. Baker, M.Fee, S. Musallam, R. Andersen, *Low Power Circuits for Brain Machine Interfaces*	Proc. Institute of Electrical and Electronics Engineers Symposium on Circuits and Systems (ISCAS 2007), New Orleans, LA, 27 – 30 May 2007
2007	Doina Precup	Warrick, P., **Precup, D.**, Hamilton, E.F. and Kearney, R.E., *Foetal Heart-rate Deceleration Detection using a Discrete Cosine Transformation Implementation of Singular Spectrum Analysis*	Methods of Information in Medicine, v. 46(2), pp. 196-201, 2007
2007	Doina Precup	Jaulmes, R., Pineau, J. and **Precup D**., *Apprentissage actif dans les processus decisionnels de markov partiellement observables, L'algorithme MEDUSA*	Revue d'Intelligence Artificielle, V. 21, pp. 9-34, 2007
2007	Doina Precup	Jaulmes, R., J. Pineau, and **Precup, D.**, *A Formal Framework for Robot Learning and Control under Model Uncertainty,*	Proc. Institute of Electrical and Electronics Engineers International Conference on Robotics and Automation ICRA 07
2007	Doina Precup	Eric Vigeant and **Doina Precup**, *Network Planning using Reinforcement Learning*	Neural Information Processing Systems (NIPS 2007) workshop on Machine Learning for Systems Planning Whistler, BC, CANADA, Dec 7th – 8th, 2007
2007	Doina Precup	Philip Warrick and **Doina Precup,** *Time Progression of a Parametric Impulse-response Function Estimate from Intra-partum cardio-tocography for Normal and Hypoxic Foetuses*	34th Annual Computers in Cardiology conference, Durham NC, USA, 30 3ep – 3 Oct, 2007,

Year	Name	Publication	Organisation
2007	Doina Precup	Philip Warwick and **Doina Precup,** *Low-order Parametric System Identification for Intra-partum Uterine Pressure Foetal Heart rate Interaction*	29th Annual International Conference of the Institute of Electrical and Electronics Engineers Engineering in Medicine and Biology Society, paper SaB07.3, 4 pages, Lyon, FRANCE, 23rd- 26th Aug, 2007
2007	Joëlle Pineau	Jaulmes, R. **Pineau, J.** and Precup D., *Apprentissage actif dans les processus decisionnels de markov partiellement observables*	Revue d'Intelligence Artificielle, V. 21, pp. 9-34, 2007
2007	Joëlle Pineau	**Pineau, J.,** Bellemare, M., Rush, A. J., Ghizaru, A., and Murphy, S.A., *Constructing Evidence-based Treatment Strategies using Methods from Computer Science*	Drug and Alcohol Dependence, v.888, pp S52- S60, 2007
2007	Joëlle Pineau	Book Chapter: Roy, N. and **Pineau, J.**, *Gerontechnology: Growing Old in a Technological Society,*	In Robotics and Independence for the Elderly, pp.209-242, Thomas Publishers. Ltd. 2007
2007	Joëlle Pineau	**Joëlle Pineau,** D.K. Haghighi, D. Precup and P. Panagaden, *Representing Systems with Hidden State*	Association for the Advancement of Artificial Intelligence Fall Symposium Series: Computational Approaches to Representation Change during Learning and Development
2007	Joëlle Pineau	Amin Atrash and **Joëlle Pineau,** *Smartwheeler – A Robotic Wheelchair Test bed for Investigating New Models of Human-Robot Interaction*	IROS '07-Institute of Electrical and Electronics Engineers/Robotic Society of Japan 2007 International Conference on Intelligent Robots and Systems San Diego, CA, USA, 29th Oct – 2nd Nov, 2007,
2007	Joëlle Pineau	**Joëlle Pineau,** D.K. Haghighi, D. Precup and P. Panagaden, *Representing Systems with Hidden State*	Association for the Advancement of Artificial Intelligence Fall Symposium Series: Computational Approaches to Representation Change during Learning and Development
2007	Joëlle Pineau	Amin Atrash and **Joëlle Pineau,** *Smartwheeler – A Robotic Wheelchair Test bed for Investigating New Models of Human-Robot Interaction*	IROS '07-Institute of Electrical and Electronics Engineers/Robotic Society of Japan 2007 International Conference on Intelligent Robots and Systems San Diego, CA, USA, 29th Oct – 2nd Nov, 2007,
2008	Joëlle Pineau	Stéphane Ross, B. Chaib-draa and **J. Pineau,** *Bayesian Reinforcement Learning in Continuous POMDPs with Application to Robot Navigation*	2008 Institute of Electrical and Electronics Engineers International Conference on Robotics and Automation, Pasadena, CA, 19th – 23rd May, 2008
2008	Joëlle Pineau	Finale Doshi**, J. Pineau** and D. N. Roy, *Reinforcement Learning with Limited Reinforcement: using Bayes Risk for Active Learning in POMDPs*	Tenth International Symposium on Artificial Intelligence and Mathematics, Fort Lauderdale, FL 2nd – 4th Jan, 2008
2008	Joëlle Pineau	Stéphane Ross, B. Chaib-draa and **J. Pineau,** *Bayesian Reinforcement Learning in Continuous POMDPs with Application to Robot Navigation*	2008 Institute of Electrical and Electronics Engineers International Conference on Robotics and Automation, Pasadena, CA, 19th – 23rd May, 2008

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2007	Bruce Pike	Toro, R., Leonard, G., Lerner, J., Lerner, R.M., **Pike, G.B.,** Richer, L., Veillette, S., Pausova, Z., Paus, T., *Prenatal Exposure to Maternal Cigarette Smoking and the Adolescent Brain*	Neuropsychopharmacology, 1-9, 2007
2007	Bruce Pike	Lupien, S.J., Evans, A., Lord, C., Miles, J, Pruessner, M. **Pike, G.B.,** Pruessner, J., *Hippocampus Volume is as Variable in Young as in Older Adults: Implications for the Notion of Hippocampal Atrophy in Humans*	NeuroImage 15:34(2): 479-485, January 2007
2007	Bruce Pike	Pruessner, M., Pruessner, J.C., Hellhammer, D.H., **Pike G.B.,** Lupien, S.J., *The Associations Among Hippocampal Volume, Cortisol Reactivity, and Memory Performance in Young Healthy Men*	Psychiatry Research 15: 155(1): 1-10, May 2007
2007	Bruce Pike	Appenzeller, S., **Pike, G.B**., Clarke< A.E., *Magnetic Resonance Imaging in the Evaluation of Central Nervous System Manifestations in Systemic lupus Erythematosus*	Clinical Reviews in Allergy Immunology Journal Dec, 2007
2007	Bruce Pike	Frey, S., Campbell, J.S.W, **Pike, G.B**., Kachaturian, M.H., Vanduffel, V., Petrides, M., *Homologues of Areas 44 and 45 in the Monkey using Diffusion Tensor Fibre Tractography*	Proc. of the 13th Annual Meeting of the Organization for Human Brain Mapping (OHBM), Chicago, Il, USA, 10 – 14, June 2007
2007	Bruce Pike	Mark, C.I., P**ike, G.B.,** *Neurovascular Metabolism coupling in the Human Visual Cortex: A Biophysical BOLD fMRI Model Comparison*	Proc. of the 13th Annual Meeting of the Organization for Human Brain Mapping (OHBM), Chicago, Il, USA, 10 – 14, June 2007
2007	Bruce Pike	Chen, J.J., **Pike, G.B.**, *Functional MRI Measurement of Venous Cerebral Blood Volume Measurement at 3 Tesla*	Proc. of the 13th Annual Meeting of the Organization for Human Brain Mapping (OHBM), Chicago, Il, USA, 10 – 14, June 2007
2007	Bruce Pike	Chen, J.J., Advani, K., **Pike, G.B**., *Analysis of the Biomechanical Origin of the Post-stimulus Undershoot in BOLD*	Proc. of the 13th Annual Meeting of the Organization for Human Brain Mapping (OHBM), Chicago, Il, USA, 10 – 14, June 2007
2007	Bruce Pike	Klepousniotou, E., Gracco, V., **Pike, G.B**., *Investigating the Right Hemisphere's Involvement in Language Processing: An fMRI Study*	Society for Neuroscience Meeting San Diego, CA, USA, Nov 3 – 7, 2007
2007	Bruce Pike	Frey, S., Petrides, M., **Pike, G.B.**, Kachaturian, M.H., Ekstrom, L.B., Arsenault, J., Vanduffel, W., *Microstimulation and fMRI of Areas 44 and 45 in the Non-human Primate*	Society for Neuroscience Meeting San Diego, CA, USA, Nov 3 – 7, 2007
2007	Bruce Pike	Klepousniotou, E., Gracco, G.L.**, Pike, G.B.** *Functional Neuroimaging of the Linguistic Abilities of the Right Hemisphere*	What Do We Want To See in Brain Imaging? London, UK, Dec 304, 2007
2007	Bruce Pike	Arnold, D.L., Chen, J., Narayanan, S., Giacomini, P., **Pike, G.B.**, Collins, D.L. *Imaging Degeneration and Repair in MS*	The Canadian endMS Research Conference, Banff, AB, Dec 10-13, 2007

Year	Name	Publication	Organisation
2007	Bruce Pike	Klepousniotou, E., Gracco, V.L., Pike, G.B., *Functional neuroimaging Evidence Regarding the Role of the Right Hemisphere in Language Processing*	Submitted to the Hellenic Society for Neuroscience 2007 Thessaloniki, Greece, Nov 30 – Dec 2, 2007
2007	Bruce Pike	Klepousniotou, E., **Pike, G.B.,** Gracco, V.L., *N400 Modulations Predict Patterns of Meaning Activation in Homonymy and Polysemy*	3rd International Congress on Brain and Behaviour, Thessaloniki, Greece, Nov 28 – Dec 2, 2007
2007	Prakash Panagaden	Posters presented: Monica Dinculescu and **Prakash Panagaden** *Duality for Probabilistic Kripke Automata* Jonathan Taylor and **Prakash Panagaden,** *Lax Bi-simulation*	4th International Conference on Quantitative Evaluation of SysTems 2007 Conference Univ. of Edinburgh, Scotland, UK, 16 – 19th Sep, 2007 4th International Conference on Quantitative Evaluation of SysTems 2007 Conference Univ. of Edinburgh, Scotland, UK, 16 – 19th Sep, 2007
2007	Prakash Panagaden	Danos, V., Kashefi, E., and **Panagaden, P.,** *The measurement Calculus*	Journal of the Association for Computing Machinery, v.54 no2. April 2007
2007	Prakash Panagaden	Chatzikokolakis, K., Palamidessi, C., and **Panagaden, P.**, *Probability of Error in Information-hiding Protocols*	Proc. of the Institute of Electrical and Electronics Engineers 20th Computer Security Foundations Symposium, pp341 –354, Venice ITALY, July 6 – 8, 2007
2007	Prakash Panagaden	Chatzikokolakis, K., Palamidessi, C., and **Panagaden, P.,** *Anonymity Protocols as Noisy Channels*	Lecture Notes in Computer Science, v. 4661, pp. 281 - 300
2008	Prakash Panagaden	Keye Martin and **Prakash Panagaden,** *A Technique for Verifying Measurements*	24th Conference on Mathematical Foundation of Programming Semantics, Univ. of Pennsylvania, 22-25, May, 2008