



McGill

C e n t r e f o r

Intelligent Machines

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Newsletter

University Holiday Closing

The university will be closed from Friday, Dec.23 to Monday, Jan. 2 inclusive for the Holiday season.

I'd like to take this opportunity to wish all our readers a very joyful holiday season and all the best for 1995.



CIM Seminars

Finding that perfect job ...

The second seminar in the series for CIM students will be held on January 23 in Room 437 from 2:00 - 3:30. The subject will be Job Search Techniques. This will be followed on March 7 with a seminar on Interview Skills. Please register now for the January seminar by email to jmb@cim.mcgill.ca.

CIM Holiday party

Reminder that the CIM Party will take place on Wednesday Dec 7 at the Poon Kai (Jade Garden) Restaurant, 67 de la Gauchetière, just west of St-Laurent. The cost will be \$11.75 per person (half price for children under 10) (in cash if possible) for an all-you-can-eat Chinese Buffet including, salad bar, Cantonese and Szechuan and Dim Sum dishes (some very spicy, I'm told!) as well as a non-meat section. There is also a cash bar which will be on a separate bill. Santa assured us he would drop in to see the children, and the entertainment promises to be 'surprising' !! It's not too late to sign up.

Research in advanced human computer interfaces for use in space

With advances in vehicle and robot automation, the role of the human operator is evolving from that of pilot/driver and manual controller to supervisor and decision maker. As technology proliferates, new operator-machine interface techniques are needed to alleviate the training and operational demands on the crew. A research project is currently underway at the Canadian Astronaut Program (Canadian Space Agency) to study and characterize the particularities of operator-machine interaction as a function of the environmental conditions prevailing in space. The objective of the project is to investigate concepts and technologies for crew working environments and for on-orbit operation of space systems. Among the applications of these new concepts, we find:

- *Graphical user interfaces
- *On-orbit subsystem interaction
- *IVA (intra-vehicular activity) control of telerobotic equipment

The technologies currently under investigation include (1) the use of voice processing as an alternative mode of subsystem control and (2) the use of a haptic interface (force-reflecting mouse) as a generic I/O device. It is foreseen that methods of this kind will decrease the perceived work load while increasing the efficiency of the operator.

Current activities include:

- The development of a speech application testbed that includes the shuttle ambient noise
- The design of a voice-activated control system for the Advanced Space Vision System, a machine vision system for the Canadarm based on realtime photogrammetry techniques

- The experimental evaluation of Vincent Hayward's pantograph in microgravity

This research project is being conducted in collaboration with the McGill Centre for Intelligent Machines and provides the motivation for a doctoral research under the supervision of Dr. Vincent Hayward and Dr. Renato deMori.

Submitted by Julie Payette

NEWS AND EVENTS

Hats off to:

☞ **Thierry Baron**, Profs. M.D. Levine & V. Hayward, and Marc Bolduc and Danny Grant, whose conference paper entitled "A Biologically-Motivated Robot Eye System", *Proc. of the 8th Canadian Aeronautics and Space Institute (CASI) Conference on Aeronautics*, (Nov. 8-10, 1994, Ottawa, Ontario, pp. 231-240) was recently awarded the Best Paper Award.

☞ **Julie Payette** received the *Award for Exceptional Achievement by a Young Engineer* from the Canadian Council of Professional Engineers on Nov. 10 at their Annual Gala. "This award is presented to a prominent young engineer in the country in recognition of his/her exceptional contribution to the engineering profession, without consideration to membership in any society, institute or association".

☞ **Sandy Sandrasegaran** has just successfully defended his thesis entitled "A Methodology For Generation of Fault Diagnostic Knowledge". This has been a most exciting year for Sandy and his wife Nala, who just completed her M.Sc., which began with the birth of baby Synthu. They are now scheduled to return to Zimbabwe via England on December 16. Sandy will start working at the University of Zimbabwe on the 1st of January. All our congratulations and the very best in your future!

☞ **Alain Achkar** who sent us this message: "I submitted my master's thesis last week. Its title is:

'Four Ways to Stabilize a Nonholonomic System on the Example of a Mobile Robot.' In plain English, this means we investigated ways for controlling a mobile robot with two wheels, and one with four wheels.

I must say it has been a lot of hard work, but I also enjoyed being part of the CIM team. My next step is searching for a job. As well, I am thinking of taking a vacation to Lebanon, to spend Xmas with my family." Best of luck Alain !

☞ **Danny Grant** just submitted his thesis entitled "Shape Memory Alloy Actuator with an application to a Robotic Eye". Danny is staying at CIM as a Research Engineer for Prof. Hayward, and he would like to thank everyone at CIM for being the helpful souls that they are.

☞ **Pierre Canet** completes his M. Eng. (project option) in a few days under the supervision of Prof. Bélanger. His research subject was on "Kalman Filter - Estimation of angular velocity and acceleration - On line implementation". Pierre said that he really enjoyed this 16-month stay in Montreal. He would like to come back in Canada in the near future but now he must return to France to do his military service as an Engineer in the Navy, hopefully in Paris. "My main regret is to leave Montréal in winter time, the most beautiful period according to me (I am not kidding)." Bonne chance Pierre !

Correction...

Please note the following correction to an article that appeared in the last CIM Newsletter (November 94). The article was on page 2 concerning the forestry robotics project. The wording can be misleading, and the information regarding the partners in the project is not complete. Please accept our apologies for any inconvenience this may have caused. The following is the corrected information:

"The forestry robotics research project mentioned in last month's Newsletter is actually piloted by CRIM, and the Forestry Engineering Research

Institute of Canada (FERIC) is also participating in the project".

Submitted by Réal Frenette

Thank you

December 1st saw so much action on the 4th floor that you would have thought it was July 1! The morning began with a crew of able-bodied movers emptying out the contents of room 420. Its previous occupant, Prof. Dudek, moved next door into 419, so Jan, Steve, Oliver, Hamid D. and Eric kindly donated their time and strength to help us move out filing cabinets, desks and book shelves. A few hours later though, another crew comprising of Phil, Paul A., Wolfgang, Yuanyun and Kadima very kindly moved the desk again to exchange it for the one in 419. Meanwhile, in the Lounge, the Library Committee was busy moving the contents of the book shelves and the shelves themselves into the Seminar Room. This was made possible with the help of Dan, Ahmed, Paul M., Marc, Hamid T. and Stephen. To all of you a heartfelt THANK YOU VERY MUCH!

The CIM Library

If you've been in the Lounge lately you will no doubt have stumbled across piles of journals and publications on the floor. No, it is not the result of a hurricane, the Library has been moved into the Seminar room and everything that is left in the Lounge is yours to read, take to your desk, take home to keep. Help yourselves, please, because anything left over by the end of this week will be thrown out !! Go ahead, for once, you won't have to return what you borrow !!



Articles & ideas are welcome. Please send them by e-mail to the editor. Deadline for publication is the 7th of every month.

Editor: Janet Burghardt (e-mail: jmb@cim.mcgill.ca)

Associate Editors: Paul Mackenzie
Kathleen VanderNoot

Brickbats ... minor problems, major headaches ...

There seems to be a misconception surrounding the colour monitors in the labs. These monitors are NOT touch responsive screens. Therefore, PLEASE there is no reason for the deluge of finger prints which run rampant on these monitors.

Then there's the problem of the bubblegum under the computer desk ... and the case of the disappearing laser ... Please remember the safety and security rules and that using these labs is a privilege that many envy. Lets keep them safe and clean.

The small machine shop that Vincent has built up was used by someone who left it in a mess: table slides unscrewed, tools mixed up in the boxes, missing drill bits, chucks with clamped sharp tools thrown in the drawers at the wrong places, etc... This facility is perhaps modest but not a joke (cost about \$40,000, acquired with hard labor and contract work, and Vincent had a \$7,000 repair (plus two months downtime for mis-use of unknown origin) once already. It is also DANGEROUS for untrained users. There is a sign saying that only Danny Grant and Vincent Hayward can use it.

In the past they have been rather lenient and have not been doing any policing. However, in future if the sign is not respected, Vincent will be forced to re-introduce the habit of locking up the area.

The Music Scene

ANIMA MUSICA under the direction of Andrée Dagenais, Christmas concerts.

On the programme: Buxtehude, Pinkham, Victoria, Guerrero, Renaissance and traditional Christmas music.

Schedule:

1) Sunday, December 11th, 3 p.m., Musée des Beaux Arts (1379 Sherbrooke W.). Price of admission to museum.

2) Saturday, December 17th, 5 p.m., Church of St-John the Evangelist (137 President Kennedy, corner

St-Urbain, metro Place des Arts). Tentative ticket prices \$14, \$9 students & seniors, \$6 children, family and group rates.

People you know in the choir: Pierre Bélanger, Anna Lin.

For more information, please contact Anna at anlin@cim.mcgill.ca.

CIM TOP TEN

Top Ten Reasons why "Bald is Better"

- ⑩ Hats weld to your head by friction and so fit better.
- ⑨ Less hair to comb! (but on the other hand, more face to wash).
- ⑧ Swimming speed can improve by up to 15%.
- ⑦ People mistake you for Captain Picard and show you more respect.
- ⑥ People who don't mistake you for Captain Picard mistake you for a seasoned soldier and still you get more respect.
- ⑤ Social life improves as women rush to rub your head.
- ④ You can use your head as a handy spot to keep post-it notes.
- ③ If pursued by villains, you can successfully hide in a pile of beach balls.
- ② Smooth, superquadric-like cranial surface makes a great test object for laser range-finder experiments.
- ① No more Alberto V05!!

Submitted by "Paul the Bald" Mackenzie

Another Year Ends
All Targets Met
All Systems Working
All Professors Satisfied
All Students Well Funded
All Research Engineers Eager and Enthusiastic
All Pigs Fed and Ready to Fly.



HAPPY
HANUKKAH



MERRY CHRISTMAS
HAPPY NEW YEAR!

