



McGill

C e n t r e f o r

Intelligent Machines

Vol. 13, No. 1 – Spring 2001

Newsletter

New Faculty

Dr. Michael Langer, who was last seen around CIM in 1995 as a PhD student of Dr. Steven Zucker, has returned. He is now an Assistant Professor in The School of Computer Science. He has begun to investigate the statistical properties of time-varying images (video) and to develop models for categorizing different types of image motion that occur in video when objects move or when the camera moves. Understanding image motion is important for many applications such as surveillance and video indexing, retrieval, and recognition. A specific problem addressed is how to compute properties of image motion in very cluttered scenes, such as a crowd scenes or forests. Cluttered scenes are difficult to process because objects pass in front of each other and are difficult to track. The solution to this problem involves a statistical approach to motion recovery in which there is no attempt to recover the exact motion, but instead we seek to constrain the motion probabilistically. This project is a collaboration with Professor Richard Mann at the University of Waterloo.

And from Tal...

After a year-long postdoc at the Montreal Neurological Institute, I am very happy to be returning to CIM in the capacity of assistant professor. My research areas will be in Computer Vision, with applications in Medical Imaging - in particular in Neurology and Neurosurgery.

I am very grateful for the warm and enthusiastic greeting I received from the professors and students alike. I can certainly say that I missed CIM during my year away, and I am honoured and excited to be starting a research program here.

New Research Labs

Thanks to funding from the Canadian Foundation for Innovation, an entirely new initiative is being pursued at CIM. The Laboratory for Computation, Visualization and Realization (CVR) is presently being created within CIM. The CVR Laboratory, is headed by Cortelezzi, Siddiqi and Krovi. It is located in Room 408, and will provide the Centre with a leading-edge single integrated environment supporting three major infrastructure components to foster collaborative research between the team members.

It is comprised of (1) a network of processors connected together as a hypercube to form a parallel computer to carry out computationally intensive scientific computations (2) a cluster of visual workstations to support the real time visualization of complex physical processes and the manipulation of high dimensional data and (3) a rapid prototyping machine for the physical realization of three-dimensional (3D) models. The CVR Laboratory offers significant opportunity to promote interdisciplinary research within CIM and McGill.

In March of 2000, Professor Benoit Boulet founded the IALab (Industrial Automation Laboratory) in room 418 at CIM. This research facility was made possible through funds coming from a CFI New Opportunities Research Grant awarded to Professor Boulet, combined with complementary funding from the Quebec Ministry of Education, the Faculty of Engineering, and the Department of Electrical and Computer Engineering, and industry. IALab's mission is to conduct high-quality applications-driven research and development work in industrial control and manufacturing execution systems. The three main research themes are: robust process control, robust flight control, and manufacturing execution systems. IALab already has four PhD students and three master's students. CIM members Professor Michalska and Professor Caines are associate faculty members of IALab. Four undergraduate students have already successfully completed projects within IALab.

New Research Initiatives:

1. Artificial Perception

New research includes the development of a framework for segmenting blood vessels in MRA (Magnetic Resonance Angiography) images, based on theoretical developments by Kaleem Siddiqi. The work is based on a geometric flow that is designed to maximize the flux of a gradient vector field through an evolving curve (2D) or surface (3D). We have also demonstrated its potential on sample 2D and 3D images. A practical aspect of this development is the validation of this method on several data sets. External collaborators include Dr. Louis Colling of the Brain Imaging Centre at the MNI, who is also part of a related FCAR team

FOND FAREWELL

A word from 'der Mouse'

In 1980 I came to Montréal to attend McGill. I crashed with a professional colleague of my mother's, in Education, for the first few days. I'll call him Bruce, because that was his name.

At the time, he lived in a semi-detached in Westmount, in the other half of which lived Steve Zucker. (I don't know how many of you have met Steve Zucker; he was a vision researcher who left here for, if memory serves, Yale, some years back.) Bruce said something like "Oh, you're interested in computers? We're going to have to get you to talk with Steve." Steve brought me in to what was then CVaGL, the Computer Vision and Graphics Lab, a small lab in Electrical Engineering, and plunked me down in front of a terminal. I rapidly became a 'tolerated hanger-about', though it was my only association with EE; as a student, I was in Arts & Science, mostly Mathematics.

As I said, this was in 1980. Back then, we had 'the VAX'. (Just 'the VAX'. You don't bother naming machines when you have only the one, and it's not networked.) It was a VAX-11/780 and it had one disk drive, which was a huge monster by today's standards - something like two feet square and

standing about three feet tall. It held all of some 60 or so megabytes, on removable disk packs, and the entire lab fit in that, because it had to. (Later, we got two more drives, which held (wow!) three hundred megabytes apiece. On removable packs in similarly huge drives.)

They found me to be useful to have around; when I graduated in 1984 (math major, CS minor), they offered me a job as sysadmin (assistant sysadmin, really), something I had been doing informally for some time.

I stayed assistant sysadmin for nearly a decade, while the lab grew and shrunk and merged and fissioned. In late 1992, I realized I was not happy. Since at the time my life more or less equaled my work, I decided the problem was that I needed a break from the job. I took a one-year leave of absence, from April 1993 through March 1994. The way things went this year helped; when I returned in April 1994 I went back to being assistant sysadmin, and stayed there until early 1997. At that point, I was approached by a small local company; after talking with them, I started working part-time with them and dropped back to part-time at McGill. This situation obtained until late 2000, when ECE approached me about teaching. The upshot of that was that I quit my position at CIM and undertook teaching Operating Systems, which brings me up to the present.

I see I've left out lots. Not a word about the name McRCIM, any others I've forgotten), or the changing of the guard as primary sysadmins came and went, or how the job and I evolved to fit one another. Nothing about the move from the 5th floor to the 4th floor. Nothing about any of the rest of my life. But if I try to turn this into either my autobiography or a history of CIM I'll take over the whole newsletter; if anyone has any questions, my mailbox is always open.

der Mouse

From all of us at CIM a fond farewell Mike !

In October we said goodbye to Gilbert Soucy who had been a part of CIM for years.

**Warm Welcome to..
New Students...**

Student Name	Degree	Professor
Ben Moore	Masters	Boulet
Charles Steeves	Masters	Buehler
Ioannis Poulakakis	Masters	Buehler Papadopoulos
Sandra Skaff	Masters	Clark
Mathieu Lamarre	Masters	Clark
Jie Yao	Masters	Cooperstock
Jin Hua Gu	Masters	Cooperstock
Peter Savadjiev	Masters	Ferrie
Louis Simard	Masters	Ferrie
Vincent Levesque	Masters	Hayward
Yuan Zhang	Masters	Cooperstock
Wareem Khan	Masters	Krovi
Abeer Ghuneim	Masters	Siddiqi
Chao Chen	Masters	Zsombor-Murray
YingXuan Duan	Ph.D	Boulet
James Andrew Smith	Ph.D	Buehler
Muhua Li	Ph.D	Clark
Jianfeng Jin	Ph.D	Cooperstock
Harkirat Sahambi	Ph.D	Levine

Sorry if we have missed anybody. Don't be shy, please let us know and we'll be sure to include you in the next newsletter.

And...

Daniel "Danny" Chouinard our new Assistant SysAdmin. Danny comes to us from the world of Industry including Pratt & Whitney and Ideas & Associates. He can be found in the office where "Mouse" used to be. Welcome aboard Danny, we hope you enjoy being part of CIM.



CONGRATULATIONS



Professor Angeles is glad to report that he received the ASME Mechanisms Committee Award during the ASME 2000 Mechanisms and Robotics Conference, on September 10-13, in Baltimore, MD. According to the Committee guidelines, "The Award

is to be given for a cumulative contribution to the field of mechanism design or theory. Continued distinction is to be a primary requisite." In the same conference, Professor Angeles and his co-author, Dr. Max A. Gonzalez-Palacios, a McGill alumnus, received the "Best paper Award" for their paper "The Novel Design of a Pure-Rolling Transmission to

Convert Rotational into Translational Motion." Professor Angeles also reports that he was awarded a "Nanyang Professorship" from Nanyang Technological University, Singapore, which will allow him to spend one month at NTU during 2001 and 2002, to conduct research with colleagues of NTU's Robotics Research Centre.



And to....

Irene Cartier who has been with the Department of Mechanical Engineering for 12 years. She works for Profs. Angeles, P. Zsombor-Murray, V. Krovi, among others, as well as for Team Northern Sun. She is the proud grandmother of two girls, four-year old, Maude, and a brand new baby, Camille.



Ed's note:

News from former CIMites.

Hi,

I just wanted to let you know my latest news. My wife gave birth to a healthy baby boy early Saturday morning (Ed's note March 3rd 2001.) Both my wife and my baby are in excellent health, and they are home now after spending a couple of days at the hospital. We called him 'Yazeed' which is an Arabic name. Everything is fine, except that I'm not getting more than 4 hours of sleep at the best!

If you would like to see pictures, then log on to www.photopoint.com, and type in qumsieh@sympatico.ca at the top right corner. I have a few pictures online.

That's it for now. Hope to hear from you soon.
Ala Qumsieh
former student with Prof. J.J. Clark