

Message from the Head

Dear Valued Reader

Once again, we finished another academic year. Throughout the year, the faculty members together with the administrative and technical staff have been doing an excellent job in ensuring the best service to our undergraduate and graduate students. Therefore, I would like to thank them all for their services, contributions, and continued commitment to the Department. Also, I would like to thank our undergraduate and graduate students for their achievements.

As a department, we celebrated the ultimate achievement of our students: their graduation. In June, we had 53 students finishing their undergraduate and graduate degrees (43 BSc, 6 MSc, and 4 PhD). On behalf of the department, I would like to congratulate our graduates

and wish them all the best in whatever endeavor they undertake and hope that they will promote the department wherever they are. You are our ambassadors to the Geomatics professional society and the whole community in general. We rely on you for promoting the role of Geomatics to the community and keeping us abreast of any challenges you might have as well as your feedback regarding your educational experience in the Department.

I would like to welcome the incoming second year students to the Department. We are sure that you will be pleased with your placement in the Department. Now you have become members of the Geomatics family, which is known to be one of the key characteristics of the Department. We promise you

to do our best to offer you an excellent education environment and to maintain our international leadership in Geomatics.

On behalf of the Department, I would like to acknowledge the financial support we received from Tecterra for several undergraduate and graduate student activists over the summer. We received funding, which will allow us to host international scientists to provide a short course as well as a tutorial to our graduate students and Alberta's industry personnel. In addition, Tecterra has provided financial support for the upcoming Survey Camp in August.

Finally, I would like to wish you all a relaxing but fruitful summer.

Dr. Ayman Habib
Professor and Head

Strategy Meeting—June 10, 2011



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Back Row L to R:

Derek Lichti, Monica Barbaro, Marcia Inch, Kirk Collins, Danielle Marceau, Susan Skone, Andrew Hunter, Julia Lai, Bill Teskey, Xin Wang, Michael Sideris, Yang Gao, Quazi Hassan.

Seated L to R: Mark Petovello, Kyle O'Keefe, Ayman Habib, Gerard Lachapelle, Naser El-Sheimy.

Congratulations



Wesley Teskey successfully defended his PhD thesis.

- Congratulations to students who completed their graduate studies: Erin Kahr, MSc; Yong Bian, PhD; Wesley Teskey, PhD; Muhammad Haris Afzal PhD.

- Congratulations to Dr. Ayman Habib who was awarded the Photogrammetric (Fairchild) Award at the 2011 Annual ASPRS conference in May. Dr. Habib was awarded the Fairchild award for his wide-ranging multifaceted contributions to photogrammetry and its constituent technical areas.

- The Department of Geomatics Engineering is pleased to announce that Dr. Michael Sideris, who completed his 2007-2011 term as President of the International Association of Geodesy (IAG), is the new Vice President of the International Union of Geodesy and Geophysics (IUGG) for the period 2011-2015. Dr. Sideris was elected to this position by the 69-country-member Council of IUGG at the XXV IUGG General Assembly, which took place in Melbourne, Australia, from June 28 to July 7, 2011.

- The Geomatics Engineering 4th year students have won the 2011 Schulich School of Engineering Design Fair - Best Poster Award. The winning group's project was "University of Calgary Hotel Alma 3D Scanning". The group leader was Andrew Moody and the other group members were Adam Jahraus, Leslie Leung, and Brian Yee. The advisors were Drs. Derek Lichti and Ayman Habib.

- Dr. Collins was the recipient of the Teaching Excellence Award for Geomatics presented at the Graduation Banquet.

- In 2007, Engineers Canada created the Engineers Canada Fellowship to honour individuals who have given noteworthy service to the engineering profession. Dr. Michael Collins was elected a Fellow of Engineers Canada in 2010. Below is a link to the relevant Engineers Canada page with a list of Fellows at the bottom. http://www.engineerscanada.ca/e/pr_fellowship.cfm

- A team of researchers from the University of Calgary have won the 2011 Royal Institute of Navigation (RIN) Michael Richey Medal for the best research paper published in the Royal Institute of Navigation Journal of Navigation. The award-winning research was conducted by UofC PhD candidate Glenn MacGougan in 2006-2009 under the co-supervision of Drs. Kyle O'Keefe, and Richard Klukas. The paper "Tightly-coupled GPS/UWB Integration", was published in Volume 63, issue 1 of the Journal of Navigation in January 2010.

- Mr. Jing Wang and Dr. Xin Wang, members of Intelligent Geospatial Data Mining Laboratory, received second prize in the 2011 GeoAlberta Conference Map Gallery contest (Best Student Category), for their work "A Traffic Accident Risk Mapping System" For more information about their work and Intelligent Geospatial Data Mining Laboratory, please visit <http://www.ucalgary.ca/wangx>

- Dr. Steve Liang, Assistant Professor in Geomatics Engineering received a provincial research chair titled AITF-Microsoft Scholar in Open Sensor Web. This award, which comes with \$220,000 jointly funded by Microsoft Research and Alberta Innovate Technology Future, will enable Dr. Liang to develop the missing algorithms and software components in order to enable scientists to search, visualize and share environmental sensing datasets with a 3D virtual globe platform. More information about Dr. Steve Liang: <http://sensorweb.geomatics.ucalgary.ca> More information about the Open Sensor Web project: <http://www.geocens.ca>

Other News

- On June 30, Yiqun Chen, a PhD Student from the Department of Geomatics Engineering at the University of Melbourne, gave a presentation on multi-agent systems and their application to park and recreational facilities planning and management. His work incorporates aspects of virtual environments, visualization, smart phone development and public participation.

- Lani Roux interviews South African residents as part of her PhD project investigating the interaction of users and land information systems. Her supervisor in the Department of Geomatics Engineering is Dr Mike Barry, holder of the John Holmlund Research Chair in Land Tenure and Cadastral Systems.



Research Spotlight

Non-destructive techniques of Underground Exploration at the Area of Great Pyramids

Article by Naser El-Sheimy & Mohamed El-Habiby (Positioning, Navigation and Wireless Location)



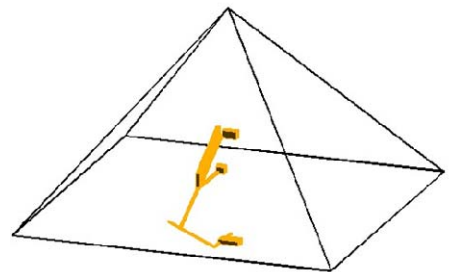
Dr. Elhabiby at the Subterranean room 120ms under the Great Pyramid- Gravimetry Measurements

Classical archaeological methods by trowels and brushes need a lot of human

effort, are time consuming and very destructive. A new archaeological-Geomatics exploration approach is introduced for the study of gravity changes for tombs detection, cavities and anomalies in the structure of Cheops pyramid, Giza, Egypt, using micro-gravimetry. The main objective of the project is to help in the search for the hidden chambers in the area of Great Pyramids in Egypt. The main advantage of the micro-gravimetry is that it is a non-destructive. The use of micro-Gravimetry in archaeology is a concept, which has not been completely explored over the past years, especially with efficient combination of gravimetric and geodetic measurements to contribute to a better understanding of the role of gravity in archaeology. The level of investigation in this project is through the comparison of measurements with a forward mode of Cheops Pyramid. This comparison will reveal if the current knowledge about the Cheops pyramid is sufficient or not.

The exploration work consists of two main steps: First, high precision executed gravimetric measurements on the surface of the pyramid using the Scintrex CG-5 relative Gravimeter of the Institute of Geodesy, Stuttgart University. The data collected are connected to a local reference frame by GPS measurements. The second part consists of a forward modelling of the pyramid using available information about

the Cheops pyramid. A comparison was conducted between the simulated data from the forward model, known density, and the measured data after reductions. This comparison will reveal if the current knowledge about the Cheops pyramid is sufficient or not. The first phase of the project is finished and almost 20% of the work is finished using micro Gravimeter and RTK GPS. The second phase is planned by the end of 2011 and early 2012. The team who worked at the great pyramids site on the first phase consisted of Dr. Mohamed Elhabiby and Dr. Matthias Weigelt as principal investigators and two researchers from Ain Shams University, Mohamed Ramadan and Mohamed Shebl and under the supervision of the Egyptian supreme council of antiquities. The project is funded by Bibliotheca Alexandrina, Alexandria, Egypt, with in kind support from University of Stuttgart, and Ain Shams University as collaborators.



The interior of the great pyramid (King, Queen and Subterranean Chambers and all the connecting tunnels)

Alumni Voice

The Geomatics department won me over during my high school tour of the University of Calgary's Engineering departments. I chose Geomatics for the navigation aspects but wasn't sure what was available in that field for a career choice. I was fortunate to take my internship with CDL Systems and then return full time after I graduated in 2003. Landing a job at CDL Systems was the perfect match. They develop ground control station software that controls unmanned air vehicles (UAV). As with most new graduates, I started out by writing and performing tests on the software but moved up to be a Project Engineer that supports the customer directly. My degree gave me a wide

breadth of knowledge that is very useful in the development of UAV software. The field of UAV's requires knowledge from many of my classes (GPS, INS, Digital Imaging, Digital Terrain, GIS, and others). I have had many chances to travel with trips to southern Arizona where I've witnessed test flights being conducted. Other destinations have included Washington DC for software integration as well as Portland, London, and Oslo to participate in NATO standards committee meetings. I didn't expect to be in the UAV business when I started my Geomatics degree but it has allowed me to be in this very exciting and technically advanced field that is continually growing. The past 9 years working with UAV's has been

challenging while also rewarding. I look forward to seeing UAV's become more prominent in civilian applications.



Kevin Magowan BSc 2003



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Switzerland Trip with Geomatics Undergrads

Leica in Heerbrugg

May 2011

Department Activities

- Congratulations to Garth Wanamaker, pin recipient for 25 years service at the U of C.
- Congratulations to Marcia Inch, the department Administrative Manager, who was married on June 18, 2011 to Vic. She is now Marcia Rempel.
- Congratulations to Steve Liang, a Assistant Professor in the department, who was also married on June 18, 2011 to Lin.



Leyte, Tacloban

- Hurried shots by Dr. Michael Barry running from a World Bank meeting in Leyte, Tacloban, to the airport taxi. He didn't use one of these to get to the airport, but it would've been fun
- Join our LinkedIn group: University of Calgary Geomatics Alumni. This was set up in an effort to keep in touch with our alumni.

Coming Events

- Survey Camp August 22—Sept 01, 2011
- ENGO 699.55 Special Studies in Integrated Sensor Orientation, Instructor Dr. Jan Skaloud — Aug 22-Sept 09, 2011. Register in Fall Timetable.
- ISPRS Workshop Laser Scanning 2011 The University of Calgary— August 29-31, 2011.
- Tutorial: Probabilistic Data Analysis Using Graphical Models, Prof. Dr.-Ing. Wolfgang Förstner, University Bonn— September 01, 2011.
- Undergrad Lectures begin Monday, September 10, 2011.

Sites to Visit:

- <http://www.geomatics.ucalgary.ca>
- <http://mms.geomatics.ucalgary.ca/>
- <http://www.cdllsystems.com/>
- http://www.nserc-crsng.gc.ca/Index_eng.asp