

EDWARD (TED) MACKINNON

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SUMMARY

Ted MacKinnon is a highly motivated, take-charge, versatile, professional with over twelve years of experience in GIS, GPS, LIDAR & Remote Sensing. His experience, knowledge and achievements have been recognized by the Canadian Institute of Geomatics by granting him a certified Geomatics Specialist title.

Some Major key strengths and skills include:

Proficient with PCI, ERDAS, ESRI ArcInfo and ArcGIS	Project Management & Employee Training	LIDAR data collection, data processing, QC \ QA and terrain Modeling
GIS spatial database and geodatabase design	Orthorectification, image analysis & photogrammetry	GPS Control Survey planning, surveying and validation with various GPS hardware

SKILLS

Remote Sensing

- LIDAR data processing, terrain modeling, Digital Elevation Models and Digital Surface Models
- Orthorectification, geo-referencing, and mosaicking of Satellite and Airborne data
- Image interpretation, enhancement, classification, change detection and analysis
- Experienced with many data types including LIDAR, RADAR, optical, hyperspectral and GPS
- Photogrammetry and Air-photo interpretation
- In-depth sound knowledge of the full suite of PCI Geomatica software, other software knowledge and experiences include eCognition, SilverEye, ERDAS Imagine and ENVI

Geographic Information Systems

- GIS spatial database development and management
- GIS modeling and statistical data analysis
- GIS Project Management Training from URISA as well as hands on GIS project management skills gained from leading and managing several GIS projects
- Digitizing, editing, digital map and graphic design
- Sound knowledge of the full suite of ESRI products dating back as far as version 6
- Cartographic mapping skills

Global Position Systems and Surveying

- Hands on knowledge and experience with a wide range of GPS hardware including Leica RTK GPS (500 sys, GS20, Total Station), Trimble GPS (ProXR, Geo3, GeoXT), Novatel, Soikka and Garmin
- GPS Control Survey Planning for existing control points and establishing new control points
- GPS data processing with GravNav, GravNet, SkiPro, Trimble Office etc
- IMU data processing
- Geological field analysis and field mapping
- Aerial Camera & LIDAR operating (Helicopter / fixed Wing / land vehicle / tripod)
- Experience with Optec & Reigl LIDAR sensors
- Great understanding of aircraft logistics (helicopter & fixed wing), and airborne surveying practices

Other Related Skills

- Presentation experience at several conferences (CIG, Geotech, Geomatics Atlantic and AGS)
- Basic programming on both Unix and Windows operating systems (EASI, AML, C, Visual Basic, VB Script, Basic, JavaScript, HTML, Perl/CGI)
- Basic French Skills (in the process of upgrading)

RELEVANT EXPERIENCE

November 2008 to present *Canadian Institute of Geomatics* Ottawa, ON

Assistant Editor [Part Time]

I am one of a few assistant editors that reads over every submitted professional articles, papers and general content in detail before it appears in "Geomatica"; the Geomatics related professional journal published by the Canadian Institute of Geomatics. The journal is printed four times a year and all though this a part time position it often involves extensive time and effort to ensure that content is of the highest standards and that deadlines are met. This opportunity also allows me to maintain my writing and editing skills and keep them sharp and up to date.

October 2006 to July 2010 *Terrapoint Canada* Ottawa, ON

Project Manager

As one of Terrapoint's senior Project Managers my responsibilities included organizing and managing a team of professionals to perform various assigned LIDAR & Photo data acquisition projects across North & Central America. This position included a wide range of responsibilities but some key duties included coordinating and managing system operators, pilots and GPS ground crew in order to acquire high resolution airborne data (LIDAR & digital photography) using one of several proprietary LIDAR systems, Optec airborne LIDAR systems as well as terrestrial LIDAR systems.

This job involved installation and maintenance of system hardware and software, quality control, quality analysis, training, trouble shooting the systems during missions, evaluating and collecting GPS control survey data, determining ideal weather and GPS conditions and assisting the entire project team through initial processing, data organization and general operation administration. The job also involved interaction and cooperation with a wide range of clients and other professionals (such as air traffic control etc) and training of new employees. This involved extensive field travel as well as time in the office.

October 2005 to October 2006 *PCI Geomatics* Richmond Hill, ON

Inside Sales Representative

My valuable geomatics skills, experiences and reputation led me becoming involved with and recruited by the sales department at PCI for the Inside Sales Representative for Europe, Africa, India and the Middle East. This role with the talented sales team allowed me to bring extensive technical experience and thorough product knowledge of PCI software products and provide sales support to both Reseller Representatives and Regional Account Executives. It helped bridge a large technology skills gap that many sales people often lack and helped meet and exceed monthly sales targets set out by management.

I liaised with existing customers, resellers, internal PCI departments and helped pursue potential leads to help further expand existing PCI clientele. This position allowed me to apply my product knowledge, experience and ideas in a different environment with goals of expanding my skill sets and helping PCI to continue to be a leader in the Geomatics Industry.

2005 to 2008 *Geocognition Consulting* Wakefield, QUE

Remote Sensing Specialist

I was part of a small group of Geomatics and archaeological professionals known as Geocognition in the National Capital region on and off for about two years before the group disbanded and went on their own ways. My role on the team was the Remote Sensing Specialist. I wrote proposals with the team and provided various imagery & GPS related services when it was required such as image analysis, enhancement & orthorectification of aerial photography and satellite imagery for the various projects. Although the over all job was sporadic in duration it allowed me to network with Geomatics professionals in the Ottawa area, which eventually lead me to moving to the area and also becoming the vice chair for the Canadian Remote Sensing Society (Ottawa Chapter) and an assistant editor for the CIG professional journal (called Geomatica).

September 2004 to October 2005 *PCI Geomatics* Richmond Hill, ON

Customer Technical Support / Training Advisor

As a key senior member of the support and training department, I provided comprehensive technical support for all PCI supported software packages (Geomatica, OrthoEngine, eCognition, RemoteView and SilverEye) to clients. I assisted in testing and quality control of the latest software releases and wrote technical guides, scripts and general technical information. I was in constant contact with clients from all over the world via phone and email communication in order to help resolve technical issues that arose from time to time and ensured that all clients received the most out of the software. This position allowed me to continue to maintain a thorough knowledge of all PCI software and keep a firm grasp on the ever changing international geomatics industry. Several support related documents that I created while with PCI are still active on their website for users to access in order to help them learn and gain further knowledge of the software.

June 2004 to September 2004 *Parks Canada (Kejimikujik National Park)* Middleton, NS

Geomatics Research Associate

Although this position was rather short in duration (4 months) it still involved extensive geomatics work ranging from orthophotography, GPS field work and detailed GIS spatial database work. I generated an air photo mosaic from 25 cm resolution aerial photography of the campground region of Kejimikujik National Park and Historic Site and corrected existing ones that were not generated properly by previous students. The main scope of the project involved the generation of a detailed spatial GIS databases of the forest stand types and existing vegetation of Kejimikujik National Park and Historic Site. Geomatics advice was provided as well as spatial analysis and several plots were prepared from the GIS databases for biologists of the Park to aid in existing work and provide tools for new research.

April 2003 to June 2004 *AGRG / Environment Canada* Middleton, NS

Geomatics Research Associate

This opportunity involved extensive technical training and field work with several key geomatics projects including my own graduate research project (LIDAR flood modeling for Environment Canada). The main scope of work involved aspects of Environmental Science and entailed field work, computer processing, and providing presentations to outside organizations. Some of the projects included surveying and mapping of Kejimikujik National Park Campground, analyzing LIDAR as a tool to derive accurate heights of forest stands, providing digital Orthophoto production, image processing and enhancement of Satellite data and assembling and deploying Campbell Scientific weather stations as well as designing a mobile mapping application for use with ESRI ArcPad.

The difference between my work internship as research associate at the AGRG and my graduate research work on my own project was very finite and often was very difficult to distinguish between. The main scope of my Applied Geomatics Research project and associated with research related to specializing in terrain modeling with high resolution LIDAR and using differential GPS for validation. I developed high resolution Digital Elevation Models from LIDAR data to provide accurate topographic representations of coastal communities of New Brunswick for Storm Surge Flood Modeling for Environment Canada. Flood extent and depth models were generated to help organizations involved in the Climate Change Action Fund (CCAF) and Environment Canada to develop adaptation strategies for coastal storm surge flooding. More details for this project are available at <http://www.tmackinnon.com>

October 2000 to November 2002 *PEI Dept. of Agriculture and Forestry* Charlottetown, PEI

GIS Technician / Orthophoto Technician

This opportunity involved developing the first provincial wide digital Orthophoto database. Over 1600 individual infrared aerial photographs were orthorectified and then mosaicked together to create orthomaps to match existing provincial topographic and land use inventory map sheets. I also had to perform quality control of the aerial photographs and all ortho products created with provided and requested GPS control data to ensure that all products meet outlined specifications of the project. This opportunity was my first professional remote sensing project outside of my intense educational work experience and allowed me to demonstrate my confidence and abilities to demonstrate what I had learnt from COGS in a professional government environment. The project proved to be more valuable to the government than originally expected by management and is now a vital part of the majority of geomatics projects that the provincial government is involved with. A summary of the project can be obtained from the following: http://www.gov.pe.ca/photos/original/af_02landforest.pdf

1999–2000 *Strait Regional School Board* Port Hawkesbury, NS

GIS Coordinator

This project was the first of its kind in Nova Scotia and was largely due to the major restructuring of several smaller community schools into larger new regional schools. This entailed the creation of an almost completely new bus routing system throughout the entire school board. The larger problem was that no digital records currently existed of either student locations or existing school bus routes. Several presentations were involved to help inform the public of all changes that were being implemented by the school board. This project involved almost entirely GIS and GPS techniques and did not involve very much remote sensing, however it was a vital role in my geomatics career as it allowed me to obtain hands on professional experience in a government environment and to apply my geomatics knowledge obtained from my intense post graduate training.

[Older positions available upon request]

EDUCATION

2003-2004	Centre of Geographic Sciences (COGS) <i>Applied Geomatics Research Post Graduate Diploma with honors</i>	Middleton, NS
1998-1999	Centre of Geographic Sciences (COGS) <i>Advanced GIS / Remote Sensing Post Graduate Diploma</i>	Lawrencetown, NS
1994-1998	Acadia University <i>BSc. Geology</i>	Wolfville, NS

PUBLICATIONS

Webster T, Forbes D, MacKinnon E and Roberts D (2006) Flood-risk mapping for storm-surge events and sea-level rise using LiDAR for southeast New Brunswick Canadian Journal of Remote Sensing Vol. 32, No. 2 pp.194-211

MacKinnon E (2005) Three Dimensional Flood Modeling with High Resolution LIDAR Ottawa, Ontario: Canadian Institute of Geomatics 98th Annual Conference

Webster T and MacKinnon E (2004) High resolution DEM Acquisition from LIDAR for Flood Risk mapping in Southeast New Brunswick Fredericton , New Brunswick: Geomatics Atlantic 2004 Conference

MacKinnon E (2004) Three Dimensional Flood Modeling with High Resolution LIDAR (Graduate thesis) Middleton, Nova Scotia: Applied Geomatics Research Group / Center of Geographic Sciences

I have also written numerous reports and documents that have not been published, many of which are available by request or from my website: <http://tmackinnon.com>

AWARDS

2006	Canadian Institute of Geomatics <i>Certified Geomatics Specialist (Remote Sensing)</i> Recognizing my Geomatics knowledge, skills, experience and education	Ottawa, ON
2005	Canadian Institute of Geomatics 2005 Conference <i>Best Young Author Award 2005</i> For paper and presentation at the 2005 CIG Conference	Ottawa, ON
2004	Geomatics Association of Nova Scotia <i>Geomatics Association of Nova Scotia Award</i> For finishing top of the Applied Geomatics Research class of 2004 at COGS	Middleton, NS
1986	Boy Scouts Canada <i>Chief Scout award</i> Highest award obtainable in Scouts	Halifax, NS

PROFESSIONAL MEMBERSHIPS

2005 – present (CASI) Canadian Aeronautics and Space Institute
2005 – present (CSRS) Canadian Remote Sensing Society (also Vice Chair of Ottawa chapter)
2003 – present (CIG) Canadian Institute of Geomatics (also assistant editor for Geomatica journal)
2002 – present (GANS) Geomatics Association of Nova Scotia

REFERENCES

Reference available by request