

INTRODUCTION TO LiDAR BASED ENHANCED FOREST INVENTORY (EFI), TERRAIN and SURFACE PRODUCTS FOR FOREST PROFESSIONALS

February 20th & 21st, 2019

\$549 + HST

LEADING EDGE GEOMATICS

Leading Edge Geomatics (LEG) has developed a Forest Management Solution Integrating Enhanced Forest Inventory (EFI) with LiDAR terrain and surface products. Our Forest Management Solution offers forest professionals the combination of forest metrics and terrain products to optimize operations and reduce the road network costs by an estimated 4-20%.

• Identify high value wood products
• Analyze variation in forest growth and performance

• LiDAR EFI & terrain products optimize operations and reduce the road network costs by an estimated 4-20%.

Leading Edge Geomatics currently produces over 25 different forest inventory metrics. LEG's EFI is developed through a combination of spectral and LiDAR data, which are combined with a series of field plots. Using state of the art equipment and methodologies, LEG's EFI measures each tree in the forest with forest metrics delivered on every 400m² (20m x 20m cell) across the landscape. LEG's EFI metrics are delivered rapidly and yield more accurate results than traditional forest inventory methods.

The cost of a Forest Management Solution is comparable to traditional inventory methods with a lower overall cost of ownership. Existing clients have experienced payback of total investment of 18 months.

EFI Forest Metrics

- Height
- Base to Live Crown
- Basal Area
- Quadratic Mean Diameter
- Density
- Volume
- Piece Size
- Diameter Distributions
- Cover Type

Forest metrics can be predicted to client specifications.

LiDAR Surface Products

- Intensity Image
- Digital Elevation Model
- Digital Surface Model
- Canopy Height Model
- Hillshade
- Slope
- Aspect

Our innovative team continually works with clients to derive new metrics to enable our solution.

"We've got this added detail and more precision at the same cost as what it cost us to do it the old way... that's really the bonus!"
- Dale Wilson, NBDNR

Introduction to LiDAR in partnership with Leading Edge Geomatics

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Providing forestry education since 1946

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**INTRODUCTION TO LiDAR BASED ENHANCED FOREST
INVENTORY (EFI), TERRAIN and SURFACE PRODUCTS FOR
FOREST PROFESSIONALS**

FROM: MARITIME COLLEGE OF FOREST TECHNOLOGY

SUBJECT: February 20th & 21st, 2019 course offering

The Maritime College of Forest Technology's, Department of Continuing Education is pleased to offer **Introduction to LiDAR Based Enhanced Forest Inventory (EFI), Terrain and Surface Products for Forest Professionals** with Riley Côté-DeMerchant as lead instructor. The dates are February 20th & 21st, 2019 beginning at 8:30 AM each day. The course will be held in room 224 of the Maritime College of Forest Technology, Fredericton, New Brunswick. Specific course details including an instructor profile, application form, and tuition costs are included in the attached announcement.

As LiDAR accessibility continues to increase, more industries are adopting the technology and discovering its practical and cost-saving applications. Resource industries including forestry, mining, and energy, are using LiDAR to increase efficiencies and lower operational costs. These industries are continuously discovering new ways to manipulate and apply data to better their operations, such as discovering watercourses and previously undetected structures and growth patterns.

Much like the GIS, LiDAR has the potential to revolutionize the forest industry. The availability of LiDAR derived Enhanced Forest Inventories has recently become more common and available across many land bases in New Brunswick and Nova Scotia, presenting forest professionals with an unprecedented amount of relevant data. The available information ranges from basic tree height, to more complex and detailed inventory attributes such as diameter distribution of stems throughout a stand. Further, EFI provides highly detailed information on the ground, including elevation data, percent slope, and accurate hydrographic information.

Through hands on demonstrations of software, this course will introduce students to the basics of LiDAR; what it is, how it works, and why it is an economical choice for data collection and analysis. An overview of LiDAR equipment, and discussion of predicted upcoming LiDAR advances, applications and trends will also take place. Riley will also provide insight into the cost-savings that Leading Edge Geomatics (LEG)'s LiDAR products and services provides. You will find out exactly how LiDAR technology can:

- Lower operational costs
- Identify high value wood products
- Analyze variation in forest growth and performance
- Increase safety
- Reduce negative environmental impacts
- Improve change detection
- Account for within stand variability across the landbase

New for 2019

This year's course will contain new material utilizing publicly available data for download. Participants will leave with the knowledge of how to download LiDAR products and produce useful real-world information for forestry operations.

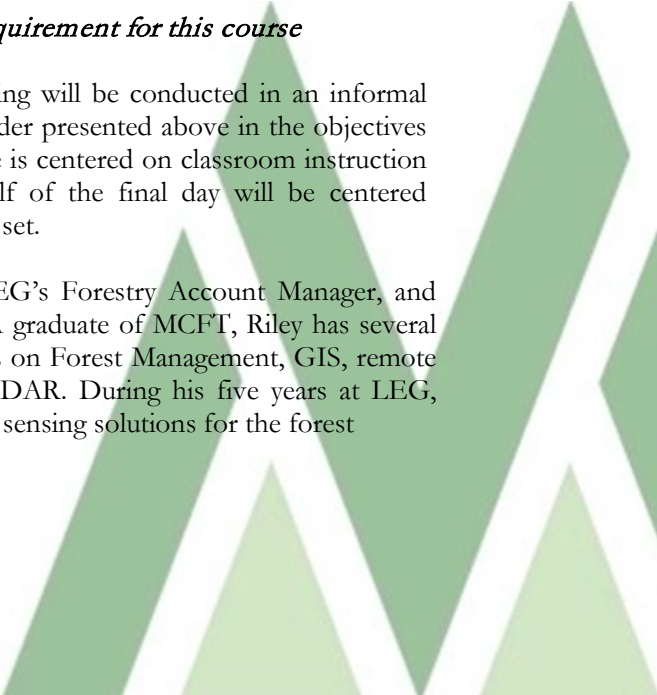
If you have any questions or wish to reserve a seat on this or any other course, please call 506-458-0649.



*Todd MacPherson, Supervisor
Department of Continuing Education*



INTRODUCTION TO LiDAR BASED ENHANCED FOREST INVENTORY (EFI), TERRAIN and SURFACE PRODUCTS FOR FOREST PROFESSIONALS

- DATES:** February 20th & 21st, 2019
- TIME:** 8:30 AM – 4:30 PM each day
- LOCATION:** Room 224, Blenis Hall, Maritime College of Forest Technology, Fredericton NB.
- OBJECTIVES:** This program is designed to help participants:
- Provide an overview of what LiDAR is and how it works
 - Briefly describe and discuss LiDAR sensors, acquisition, accuracy assessment, quality control and processing
 - Overview of LiDAR Applications other than forestry
 - Detailed Review of LiDAR Applications for Forestry from a Maritime Context
 - Details of EFI and LiDAR surface and terrain products
 - Benefits of EFI and LiDAR surface and terrain products
 - How to integrate EFI and LiDAR surface and terrain products into your business
 - Hands on analysis of EFI and LiDAR surface and terrain products
 - Discuss predicted trends and application advancements
- CANDIDATES:** This program is designed for people working in the resource industry, such as forestry, mining, and energy, with a specific focus for those who participate in:
- harvest and silvicultural planning
 - road and trail planning
 - process improvement analysis
 - wetland or watercourse mapping
- Working knowledge of ArcGIS is a requirement for this course*
- FORMAT:** **Introduction to LiDAR Products** training will be conducted in an informal manner. The workshop will follow the order presented above in the objectives of the course. The majority of the course is centered on classroom instruction with individual and group exercises. Half of the final day will be centered around hands on analysis of a sample data set.
- FACILITATORS:** **Riley Côté-DeMerchant** is currently LEG's Forestry Account Manager, and has been with the company since 2010. A graduate of MCFT, Riley has several years' experience in Forestry, with a focus on Forest Management, GIS, remote sensing, and forest inventorying using LiDAR. During his five years at LEG, Riley has been working to develop remote sensing solutions for the forest
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FACILITATORS (cont'd):

industry, and has also aided in the development of solutions for vegetation mapping as it pertains to both the powerline and airport industries.

Riley is well-versed in many aspects of the Forest Industry, having attended countless workshops and conferences, and presented at the Enhanced Forest Inventory Workshop at the Canadian Woodlands Forum Spring Meeting in Moncton, and the LiDAR in Forest Management Seminar at the Northern Hardwoods Research Institute.

Duncan Allen is the Remote Sensing Solutions Team Lead. He is responsible for all phases of LiDAR and Photogrammetry production support and related GIS integration. A graduate of UNB and COGS, Duncan began his career with LEG in 2008. He has been involved in nearly every project at Leading Edge, managing teams, working directly with data, or both. Duncan has contributed to the development of many of LEG's solutions, specifically their EFI products.

Kyle Buckley is the Forest Inventory Analyst at Leading Edge, and is a graduate of both UNB's forestry degree and Algonquin College's forest technology programs. Prior to joining LEG in February of 2017, Kyle gained experience in the silvicultural and inventory practices of western Canada, as well as in urban forestry. Since starting at LEG, Kyle has lead multiple field data collection efforts, and has trained clients on the proper mensuration techniques required for the collection of LiDAR calibration plots. Together with the LEG's Forestry Account Manager, Kyle works daily with the forest product deliverables to ensure acceptable levels of accuracy and precision are met, and that products continue evolving in order to satisfy the ever-changing needs of the forestry profession.

ENROLMENT:

Enrolment will be limited to twenty five (25) candidates on a first come-first served basis.

ACCOMMODATIONS:

MCFT has a room rental agreement with the Fredericton Inn. Please dial 1-800-561-8777 and use discount code 'MCFT'. Costs for standard rooms are:

\$109 per night single occupancy

\$129 per night double occupancy

MEALS:

Two nutrition breaks per day and your lunch is included in your tuition fee.

TUITION:

Tuition for the program, including supplies, is \$549.00 + 15% HST.

**Introduction to LiDAR Based Enhanced Forest Inventory (EFI), Terrain and Surface Products for Forest Professionals is equivalent to
*14 Continuing Forestry Education Credits***



