



# Francois du Toit

PHD CANDIDATE

University of British Columbia, Vancouver

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## Education

### University of British Columbia

Vancouver, BC

PHD REMOTE SENSING OF FORESTS

September 2018 - Present

- Assessing Structural Differences among Genetically Improved Coastal Douglas-fir using High Density Airborne Laser Scanning
  - Committee: Nicholas Coops, Yousry A. El-Kassaby, Rob Guy, Arko Lucieer

### University of British Columbia

Vancouver, BC

MASTER OF GEOMATICS FOR ENVIRONMENTAL MANAGEMENT

September 2017 - April 2018

- Professional masters degree program
  - Advanced GIS, Remote sensing, Spatial statistics

### University of British Columbia

Vancouver, BC

BSc GEOLOGY

September 2009 - May 2014

- Completed all EGBC course requirements in order to become a registered Professional Geoscientist.

## Experience

### Doctoral Research

Vancouver, BC

DEPARTMENT OF FOREST RESOURCES MANAGEMENT (UBC)

September 2018 - Present

- Assessing Structural Differences among Genetically Improved Coastal Douglas-fir using High Density Airborne Laser Scanning.
  - UAV and airborne LiDAR processing and analysis at the individual tree scale. Focus on the creation and use of novel metrics as well as taking into account genetic x environment interactions
  - Contribute to a project aimed at enhancing the measurement and management of genetically improved Douglas-fir, culminating in peer-reviewed papers as well as a best practices guide for breeders in British Columbia

### Open Geomatics Textbook Contributor

Vancouver, BC

DEPARTMENT OF FOREST RESOURCES MANAGEMENT (UBC)

May 2021 - September 2021

- Created the LiDAR a chapter for an Open Education Resource (OER) online textbook for teaching geomatics and environmental management from a Canadian perspective.
  - <https://ubc-geomatics-textbook.github.io/geomatics-textbook/>

### Junior Geologist

Yellowknife, NT

AURORA GEOSCIENCES LTD.

March 2016 - August 2017

- Worked on multiple exploration projects in the Northwest Territories and the Yukon.
  - Introductory core logging (granite)
  - Performed various geotechnical measurements of diamond drill core, geotechnical measurements on oriented core
  - Sight and align drill holes
  - Helping to organise and run a soil sampling program including database management/logistics
  - Ground based magnetic survey including planning and organising the day's operations (crew chief)

## Teaching

### Teaching assistant

Vancouver, BC

DEPARTMENT OF FOREST RESOURCES MANAGEMENT (UBC)

September 2018 - April 2022

- Project Proposal Development and Proof of Concept (graduate level course).
  - Helped students to develop, write, and deliver an effective project proposal
  - Delivered guest lectures
  - Developed quizzes, and assignments
  - Coordinated grading and student mentorship with a team of 4 teaching assistants

## Graduate Academic Assistant

DEPARTMENT OF FOREST RESOURCES MANAGEMENT (UBC)

Vancouver, BC

July 2020 - September 2020

- Lab/Assignment Development.
  - Developed a lab to use LiDAR for spatial interpolation for GEM 511: Advanced Geographic Information Systems for Environmental Management
  - Developed a lab to help write metadata and archive projects for GEM 511: Advanced Geographic Information Systems for Environmental Management as part of the MGEM program

## Technical Skills

### Technical Writing

STRONG SCIENTIFIC WRITER INCLUDING PUBLICATIONS AND LITERATURE REVIEWS

### Data Analysis

PRIMARY EXPERIENCE USING R AND ARCGIS PRO/ARCMAP TO CONDUCT SPATIAL ANALYSIS, WITH EXPOSURE TO QGIS AND

GOOGLE EARTH ENGINE. ADOBE ILLUSTRATOR FOR FIGURE CREATION AND VISUALIZATION.

### Project Management

PLANNING, ORGANIZATION, IMPLEMENTATION, COMMUNICATION AND LOGISTICS

## Awards

### PhD Funding

FOUR YEAR DOCTORAL FELLOWSHIP (4YF)

Vancouver, BC

2018

### Graduate Award

MARY AND DAVID MACAREE FELLOWSHIP

Vancouver, BC

2021

### Presentation

WFGA CRITCHFIELD AWARD - BEST STUDENT ORAL PRESENTATION

Vancouver, BC

2021

### Presentation

UBC FACULTY OF FORESTRY 3MT WINNER

Vancouver, BC

2021

### Graduate Award

WELWOOD OF CANADA LIMITED H. RICHARD WHITTALL SCHOLARSHIP

Vancouver, BC

2020 2021

### Graduate Award

VANDUSEN GRADUATE FELLOWSHIP IN FORESTRY

Vancouver, BC

2020 2021

### Undergraduate Award

APEGBC ACHIEVEMENT AWARD IN GEOSCIENCE

Vancouver, BC

2014

## Peer-Reviewed Publications

1. Du Toit, F., Coops, N. C., Goodbody, T. R. H., Stoeher, M., & El-Kassaby, Y. A. (2021). Deriving internal crown geometric features of Douglas-fir from airborne laser scanning in a realized-gain trial. *Forestry: An International Journal of Forest Research*. <https://doi.org/10.1093/forestry/cpaa046>
2. Du Toit, F., Coops, N. C., Tompalski, P., Goodbody, T. R. H., El-Kassaby, Y. A., Stoeher, M., Turner, D., & Lucieer, A. (2020). Characterizing variations in growth characteristics between Douglas-fir with different genetic gain levels using airborne laser scanning. *Trees - Structure and Function*, 34(3), 649–664. <https://doi.org/10.1007/s00468-019-01946-y>

## Presentations

### IPNN Forest Phenotyping Working Group Workshop

DERIVING BRANCH LENGTH AND WIDTH FROM ALS IN A DOUGLAS-FIR TREE IMPROVEMENT TRIAL IN BRITISH COLUMBIA, CANADA

Online

November 2021

### Canadian Cartographic Association (CCA) Conference

USE OF REMOTE SENSING TECHNOLOGY FOR PHENOTYPING IN TREE IMPROVEMENT PROGRAMS IN BRITISH COLUMBIA, CANADA

Online

May 2021

## Forest Genetics Student and Post Doc Symposium

USE OF REMOTE SENSING TECHNOLOGY FOR PHENOTYPING IN TREE IMPROVEMENT PROGRAMS IN BRITISH COLUMBIA, CANADA

Online

May 2021

## SilviLaser

ASSESSING STRUCTURAL DIFFERENCES AMONG GENETICALLY IMPROVED COASTAL DOUGLAS-FIR USING HIGH DENSITY

AIRBORNE LASER SCANNING

Foz de Iguazu, Brazil

October 2019

## Forest Genetics Council Field Tour

ASSESSING STRUCTURAL DIFFERENCES AMONG GENETICALLY IMPROVED COASTAL DOUGLAS-FIR USING HIGH DENSITY

AIRBORNE LASER SCANNING

Cowichan Lake, BC

September 2019

## Activities

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### Assitant Coach - Men's Rugby

UNIVERSITY OF BRITISH COLUMBIA

Vancouver, BC

2019 -

### Assitant Coach - Women's Rugby

MERALOMA RUGBY CLUB

Vancouver, BC

2017 - 2019