



Francois du Toit

POSTDOCTORAL RESEARCH FELLOW

University of British Columbia, Vancouver

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Education

University of British Columbia

Vancouver, BC

PHD REMOTE SENSING OF FORESTS

September 2018 - November 2022

- 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 including advanced GIS, remote sensing, and 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

Postdoctoral Research Fellow

Vancouver, BC

DEPARTMENT OF FOREST RESOURCES MANAGEMENT (UBC)

November 2022 - Present

- Carbon Sequestration Optimization in Canadian Forests

Doctoral Researcher

Vancouver, BC

DEPARTMENT OF FOREST RESOURCES MANAGEMENT (UBC)

September 2018 - November 2022

- 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)

Skills

Technical Writing

STRONG SCIENTIFIC WRITER INCLUDING PUBLICATIONS AND LITERATURE REVIEWS. PEER-REVIEWED ARTICLES FOR A VARIETY OF SCIENTIFIC JOURNALS

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, LOGISTICS. STRONG COMMUNICATION SKILLS

Languages

ENGLISH - NATIVE. AFRIKAANS - FLUENT. GERMAN - INTERMEDIATE.

Peer-Reviewed Publications

1. Du Toit, F., Coops, N. C., Ratcliffe, B., & El-Kassaby, Y. A. (2022). Generating Douglas-fir Breeding Value Estimates Using Airborne Laser Scanning Derived Height and Crown Metrics. *Frontiers in Plant Science*, 13(July). <https://doi.org/10.3389/fpls.2022.893017>
2. Du Toit, F., Coops, N. C., Goodbody, T. R. H., Stoehr, 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>
3. Du Toit, F., Coops, N. C., Tompalski, P., Goodbody, T. R. H., El-Kassaby, Y. A., Stoehr, 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

Marcus Wallenberg Prize Young Researchers' Challenge 2022

Stockholm, Sweden

ASSESSING STRUCTURAL DIFFERENCES AMONG GENETICALLY IMPROVED COASTAL DOUGLAS-FIR USING HIGH DENSITY AIRBORNE LASER SCANNING (3 MINUTE THESIS AND POSTER PRESENTATION)

November 2022

University of Tasmania Workshop

Hobart, Australia

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

April 2022

IPNN Forest Phenotyping Working Group Workshop

Online

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

November 2021

Canadian Cartographic Association (CCA) Conference

Online

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

May 2021

Forest Genetics Student and Post Doc Symposium

Online

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

May 2021

SilviLaser

Foz de Iguazu, Brazil

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

October 2019

Forest Genetics Council Field Tour

Cowichan Lake, BC

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

September 2019

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

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

Graduate Award

PRESIDENT'S ACADEMIC EXCELLENCE INITIATIVE PHD AWARD

Vancouver, BC

2020 2021

Undergraduate Award

APEGBC ACHIEVEMENT AWARD IN GEOSCIENCE

Vancouver, BC

2014

Activities

Assistant Coach - Men's Rugby

UNIVERSITY OF BRITISH COLUMBIA

Vancouver, BC

2019 -

Assistant Coach - Women's Rugby

MERALOMA RUGBY CLUB

Vancouver, BC

2017 - 2019