Curriculum Vitae

Nicholas Pontone, MSc
Ottawa, Ontario, Canada
NicholasPontone@Cmail.carleton.ca

Education

Doctor of Philosophy, Geography Candidate **2023 - IP**
Carleton University, Ottawa, Ontario
- Supervisors: Dr. Koreen Millard, Dr. Derek Mueller

Masters of Science, Geography conc. Data Science **2021 - 2023**
Carleton University, Ottawa, Ontario
- Thesis Title: “The Classification and Characterization of Canadian Boreal Peatland Sub-Classes”
- Supervisor: Dr. Koreen Millard

Bachelor of Arts Honours, Geomatics **2017 - 2021**
Carleton University, Ottawa, Ontario

Selected Honours and Awards

- NSERC C-GSM, 2022-2023 ($17,500)
- Weston Family Award in Northern Research, 2022-2023 ($15,000)
- FASS Undergraduate Summer Research Internship, 2021 ($7500)
- Second Place Best Student Oral Presentation, Canadian Symposium For Remote Sensing, Yellowknife, 2023 ($350)

Research Interests

- My primary research interest is the remote sensing of boreal peatlands, with a particular focus on the relationships between peatland ecohydrological characteristics and wildfires. I enjoy taking a big data approach to problems and often employ data science, multi-sensor (Optical, SAR, InSAR, and spaceborne lidar), machine learning, and time-series analysis techniques.

Employment

Research Scientist, Terra Motion Canada **2024**
- Researched and developed Terra Motion’s InSAR algorithms, products, and services.
- Co-authored project milestone reports.
- Conducted thorough background and literature reviews, providing conceptual support for project objectives.
- Collaborated with cross-functional teams to integrate Terra Motion technologies into multidisciplinary projects.

Research Affiliate, Canadian Geodetic Survey **2024**

- Assessed the quality and reliability of NASA JPL's SAR-derived OPERA products over the Canadian Landmass.
- Investigated the use of InSAR displacement products can be used to fill gaps in Canada's crustal velocity model.

Field Assistant, Canadian Forest Service **2022**
Natural Resources Canada, Kluane National Park and Reserve, Yukon

- Assisted with the collection of field data a fire history reconstruction of Kluane National Park and Reserve, Yukon.
- Responsible for the collection of tree core samples, the labelling and management of samples, the recording of site characteristics, and the installation of iButton temperature sensors at field sites

FASS Undergraduate Research Internship, Faculty of Arts and Social Sciences **2021**
Carleton University, Ottawa, Ontario

- Used continuous change detection and classification of all available Landsat data to detect and characterize forest disturbances in Temagami, Ontario.

Research Assistant, Space Weather Group **2019 - 2020**
Natural Resources Canada, Ottawa, Ontario

- Investigated GPS errors due to space weather events
- Processed single and dual-Frequency GNSS observations to SPP and PPP solutions
- Compiled processed data to facilitate analysis and visualization
- Contributed to the writing of technical reports for NAV Canada.

Teaching Experience

Remote Sensing Field Course, Department of Geography and Environmental Studies, **2025**
Carleton University

- Developed course materials and exercises.
- Supervised field exercises.

Guest Lecture on SAR Soil Moisture, Department of Geography and Environmental Studies **2025**
Special Topics in Geomatics: SAR remote sensing.
Carleton University

Guest Lecture on Multi-Sensor Image Classification, Department of Geography and Environmental Studies
2025

Remote Sensing of Environment
Carleton University

Google Earth Engine Workshop, Canadian Symposium for Remote Sensing, Halifax (National Conference),
2024
Canadian Remote Sensing Society.

Introduction to Google Earth Engine Workshop, Geography and Environmental Studies Student Association, Department of Geography and Environmental Studies
2024
Carleton University

Guest Lecture on Remote Sensing, Department of Geography and Environmental Studies
2024
Raster GIS: Pixels and Grids
Carleton University

Guest Lecture on Multi-Sensor Image Classification, Department of Geography and Environmental Studies
2024
Remote Sensing of Environment
Carleton University

Introduction to Google Earth Engine Workshop, Macodrum Library
2023
Carleton University

Guest Lecture on Spaceborne LiDAR, Department of Geography and Environmental Studies
2023
Introduction to Remote Sensing
Carleton University

Guest Lecture on Remote Sensing, Department of Geography and Environmental Studies
2023
Raster GIS: Pixels and Grids
Carleton University

Teaching Assistant, Department of Geography and Environmental Studies **2021-Present**
Carleton University

- Courses:
    - Remote Sensing of Environment (2023/2024)
        - Developed lab on time series analysis, CCDC and LandTendr
    - Cartographic Theory and Design (2022/2023/2024/2025)

        - Developed lab on web cartography using D3 for web mapping
    - Geospatial Analysis (2023)
    - Quantitative Geography - Statistics (2022)
    - Geospatial Programming (2021/2023/2024/2025)

- Prepared and presented lab demonstrations.
- Graded assignments, quizzes, exams, and lab exercises.
- Developed lab assignments and exercises.

Publications

Scholarly Articles

Data and knowledge needs for improving science and policy for peatlands in Canada in a changing world: Insights from Global Peatlands Initiative Workshop, June 2023 (2025) L.K. Webster, M. Strack, N. Balliston, M. Davies, K. Hettinga, M. Hunter, K. Kleinke, M. Schmidt, C. Barreto, Bird. Melaine, K. Blann, B. Kelly, A. Cassidy, J. Connolly, S. Davidson, L. Fedorchuck, M. Garneau, L. Harris, H. He, S. Howie, A. Kirkwood, **N. Pontone,** K. Richardson, N. Sanderson, G. Seutin, B. Xu, X. Yin. *FACETS*

N. Pontone, K. Millard, D.K Thompson, L. Guindon, A. Beaudoin (2024) A Hierarchical Multi-Sensor Framework for Peatland Sub-Class and Vegetation Mapping Throughout the Canadian Boreal Forest. *Remote Sensing in Ecology and Conservation.* https://doi.org/10.1002/rse2.384

Technical Reports

R. A D. Fiori, L. Nikitina, D.H Boteler, R. Langer, **N. Pontone** (2022). Space Weather Services for NavCanada: Final Report

R. A. D. Fiori, L. Nikitina, D. H. Boteler, **N. Pontone,** G. Waddington, Spring Term Report (2021). Preparation of Services related to space weather effects on Aviation: Continued Development of Forecast on GNSS Accuracy

Scientific Datasets

Pontone, N., Millard, K., Thompson, D. K., Guindon, L., & Beaudoin, A. (2024). A Peatland Sub-Class Map for the Canadian Boreal Forest [Data set]. In Remote Sensing in Ecology and Conservation. Zenodo. https://doi.org/10.5281/zenodo.10627580

Beaudoin, A., Villemaire, P., Gignac, C., Tolszczuk, S., Guindon, L., **Pontone, N.,** K. Millard (2024). Canada's PALSAR-2 dual-polarized L-band radar summer backscatter composite, circa 2020. Natural Resources Canada, Canadian Forest Service, Laurentian Forestry Centre, Quebec, Canada. https://doi.org/10.23687/8ec4ee78-9240-4bd0-9c97-d3a27829e209

Journalistic Articles

N. Pontone, K. Millard, M. Richardson, (2021) Mapping the Footprint of Wildfires and Clear Cutting in Temagami Region Forests since 1985, Temagami Times (Local newspaper)

Scholarly Presentations

K. Millard, V. Ribberink, **N. Pontone,** T. Tampuu, A. Kull (2025) SAR coherence and backscatter time series indicate differences between restored, rewetted, abandoned and natural peatlands. Living Planet, Vienna (Contributing author, Oral Presentation - International Conference)

N. Pontone, K. Millard (2025) Temporal Coherence of Peatlands in the Northern Hemisphere: Insights for InSAR based studies. CMOS-CGU Joint Congress, Saskatoon (Oral Presentation - National Conference).

N. Pontone, K. Millard, D.K Thompson, L. Guindon, A. Beaudoin (2024) Mapping Canada's Peatlands using Remote Sensing. Wetland Knowledge Exchange Webinar (Invited Oral Presentation)

N. Pontone, K. Millard (2024) A Peatland Sub-class, Vegetation Height and Phenology Map for the Canadian Boreal Forest, Canadian Symposium for Remote Sensing, Halifax (Poster Presentation - National Conference).

N. Pontone, K. Millard, D.K Thompson, L. Guindon, A. Beaudoin (2024) Mapping Canada's Peatlands using Multi-Sensor Remote Sensing, a Hierarchical Classification Framework (Oral presentation - Departmental Seminar)

N. Pelletier**,** D.K Thompson, **N. Pontone,** K. Millard, (2024) Severe droughts are putting Canadian peatland carbon stocks at risk: a remote sensing analysis of fire selectivity and behaviour in peatlands over the extreme 2023 fire season, Canadian Symposium for Remote Sensing, Halifax (Contributing author, oral Presentation - National Conference).

N. Pontone, K. Millard, D.K Thompson, L. Guindon, A. Beaudoin (2024) A Hierarchical Multi-Sensor Framework for Peatland Sub-Class and Vegetation Mapping Throughout the Canadian Boreal Forest. Ottawa-Carleton Student Northern Research Symposium (Oral presentation - Student conference)

N. Pontone, K. Millard, D.K Thompson, L. Guindon, A. Beaudoin (2023) The Classification and Characterization of Canadian Boreal Peatland Subclasses, Canadian Symposium for Remote Sensing, Yellowknife (Oral Presentation - National Conference)

N. Pontone, K. Millard, D.K Thompson, L. Guindon, A. Beaudoin (2022) Toward the Classification and Characterization of Canadian Boreal Peatland Sub-classes. Canadian Symposium for Remote Sensing, Quebec (Poster Presentation - National Conference)

Service to the Discipline

Graduate Student Representative, Chair Selection Committee **2024**
Department of Geography and Environmental Studies, Carleton University

Ad Hoc Peer Reviewer

- Ecospheres (1)
- Remote Sensing of Environment (2)

Academic Association Executive, Carleton University Geography and Environmental Studies Student Association **2018 - 2021**
Department of Geography and Environmental Studies, Carleton University

- President (2020-2021)
- Treasurer (2019-2020)
- Events Coordinator (2018-2019)