

**Mingke Erin Li, PhD candidate**

Department of Geomatics Engineering

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**Education**

- Present Ph.D., GIScience and Land Tenure, Department of Geomatics Engineering, University of Calgary, Canada
- 2019 MSc, Forestry, Faculty of Forestry and Environmental Management, University of New Brunswick, Canada
- 2016 BSc, GIScience, Faculty of Forestry, Nanjing Forestry University, Nanjing, China

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**Research Interests**

Discrete Global Grid Systems  
Geographic Information Science  
Spatial Analysis  
Flood Susceptibility Modeling  
Forest Ecology

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**Peer-reviewed Publications**

- 2022 **Li, M.**; McGrath, H.; Stefanakis, E. Topographic Operations in Hexagonal Discrete Global Grid Systems. *International Journal of Applied Earth Observation and Geoinformation*. Under review.
- 2022 **Li, M.**; McGrath, H.; Stefanakis, E. Geovisualization of Hydrological Flow in Hexagonal Grid Systems. *Geographies*. 2022(2), 227–244.
- 2021 **Li, M.**; McGrath, H.; Stefanakis, E. Integration of Heterogeneous Terrain Data into Discrete Global Grid Systems. *Cartography and Geographic Information Science*. 48(6), 546-564.
- 2020 **Li, M.**; Stefanakis, E. Geospatial Operations of Discrete Global Grid Systems – A Comparison with Traditional GIS. *Journal of Geovisualization and Spatial Analysis* 4(2), 26.
- 2020 **Li, M.**; Stefanakis, E. Geo-feature Modeling Uncertainties in Discrete Global Grids: A Case Study of Downtown Calgary, Canada. *Geomatica* 74, 175-195.
- 2020 **Li, M.**; MacLean, D.A.; Hennigar, C.R.; Ogilvie, J. Previous Year Outbreak Conditions and Spring Climate Predict Spruce Budworm Population Changes in the Following Year. *Forest Ecology and Management* 458, 117737.
- 2019 **Li, M.**; MacLean, D.A.; Hennigar, C.R.; Ogilvie, J. Spatial-Temporal Patterns of Spruce Budworm Defoliation within Plots in Québec. *Forests* 10, 232.

**Conference Presentations**

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- 2022 **Li, M.;** McGrath, H.; Stefanakis, E. Analytical operations for terrain data modeled in Discrete Global Grid Systems. 2022 Canadian Cartographic Association Conference, Online.
- 2021 **Li, M.;** McGrath, H.; Stefanakis, E. Integration of multi-source terrain data on Discrete Global Grids in Canada. 2021 Canadian Cartographic Association Conference, Online.
- 2020 **Li, M.;** Stefanakis, E.; McGrath, H. National terrain data management on Discrete Global Grids in Canada. AutoCarto 2020, Online.
- 2018 **Li, M.;** MacLean, D.A.; Hennigar, C.R.; Ogilvie, J. Spatial-temporal patterns of spruce budworm defoliation within measured plots in Québec. The 9<sup>th</sup> Bi-Annual Eastern Canada - USA Forest Science Conference, Fredericton, Canada.
- 2018 **Li, M.;** MacLean, D.A. GIS analyses of factors influencing spruce budworm outbreak initiation in northern New Brunswick. SERG International Workshop, Edmonton, Canada.

**Other Invited Presentations**

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- 2022 Quantization, Analysis, and Application of Terrain Data Modeled in Discrete Global Grid Systems. Presented at the International Society for Photogrammetry and Remote Sensing Work Group IV/7 (Geo-Data Management) Webinar, Online.
- 2021 Integration Platform for Canadian Terrain Data: A DGGs Perspective. Presented at the Natural Resources Canada, Online.

**Work Experience**

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- 2022 *Internship, Canada Centre of Mapping and Earth Observation, Natural Resources Canada*
- Flood susceptibility mapping with climate change considerations - a part of the National Flood Hazard Identification and Mapping Program.
- 2020-2022 *Research assistant, Department of Geomatics Engineering, University of Calgary*
- Large network analysis component in the project evaluating impact of gasoline station infrastructure contraction on stranded assets.
  - Flood susceptibility modeling by machine learning in hexagonal grid systems.
  - Automating geospatial data extraction via web services and multi-format data integration.
- 2020-2022 *Teaching assistant, Department of Geomatics Engineering, University of Calgary*
- Introduction to Geospatial Information Systems.
- 2017-2018 *Teaching assistant, Faculty of Forestry and Environmental Management, University of New Brunswick*
- Management of Natural Systems.
  - Introduction to GIS with Applications in Environmental Management.
  - GIS Training for Natural Resource Professionals Workshop.

**Honors, Awards & Activities**

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2022	Esri Young Scholars Award – First Runner Up, Calgary
2021	CRSNG-CREATE DOTS program scholarship, Sherbrooke
2021	Esri Canada Centre of Excellence App Challenge – First Runner Up, Calgary
2020&2021	Geomatics Engineering Department FGS Award, Calgary
2018	SERG International Graduate Student Award, Edmonton

**Professional Skills**

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Python, R, Jupyter Notebook, SQL, PostgreSQL  
ArcPy, dggridR, GDAL, Git, Mapbox  
ESRI Products, QGIS, ENVI  
ArcGIS Online, Google Data Studio, Google Earth Engine, Tableau