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

2017 BSc, GIScience, Faculty of Forestry, Nanjing Forestry University, Nanjing, China

Research Interests

Discrete Global Grid Systems
Geographic Information Science
Spatial Analysis
Geostatistics
Machine Learning
Topographical and Hydrological Modeling
Flood Susceptibility Modeling
Forest Ecology

Peer-reviewed Publications

2022 **Li, M.**; McGrath, H.; Stefanakis, E. Multi-scale Flood Mapping under Climate Change Scenarios in Hexagonal Discrete Global Grids. *ISPRS International Journal of Geo-Information.* 11(12), 627.

2022 **Li, M.**; McGrath, H.; Stefanakis, E. Topographic Operations in Hexagonal Discrete Global Grid Systems. *International Journal of Applied Earth Observation and Geoinformation*. 113, 102985.

2022 **Li, M.**; McGrath, H.; Stefanakis, E. Geovisualization of Hydrological Flow in Hexagonal Grid Systems. *Geographies*. 2(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

2022 **Li, M.**; McGrath, H.; Stefanakis, E. Analytical operations for terrain data modeled in Discrete Global Grid Systems. Canadian Cartographic Association Conference, May 2022, Online.

2021 **Li, M.**; McGrath, H.; Stefanakis, E. Integration of multi-source terrain data on Discrete Global Grids in Canada. Canadian Cartographic Association Conference, May 2021, Online.

2020 **Li, M.**; Stefanakis, E.; McGrath, H. National terrain data management on Discrete Global Grids in Canada. AutoCarto 2020, Oct. 2020, Online.

2018 **Li, M.**; MacLean, D.A.; Hennigar, C.R.; Ogilvie, J. Spatial-tempol patterns of spruce budworm defoliation within measured plots in Québec. The 9th Bi-Annual Eastern Canada - USA Forest Science Conference, Oct. 2018, Fredericton, Canada.

2018 **Li, M.**; MacLean, D.A. GIS analyses of factors influencing spruce budworm outbreak initiation in northern New Brunswick. SERG International Workshop, Feb. 2018, Edmonton, Canada.

Other Invited Talks

2022 Flood Susceptibility Modeling in Discrete Global Grids under Climate Change Scenarios. Presented at the Natural Resources Canada, Oct. 2022, Online.

2022 Geospatial Data Analysis in Discrete Global Grid Systems – Progress and Perspectives. Presented at the China Agricultural University, May 2022, Online.

2022 Quantization, Analysis, and Application of Terrain Data Modeled in Discrete Global Grid Systems. Presented at the International Society for Photogrammetry and Remote Sensing Working Group IV/7 (Geo-Data Management) Webinar, Jan. 2022, Online.

2021 Integration Platform for Canadian Terrain Data: A DGGS Perspective. Presented at the Natural Resources Canada, Apr. 2021, Online.

Work Experience

2020-2023 *Teaching Assistant, Department of Geomatics Engineering, University of Calgary*

- Introduction to Geospatial Information Systems.
- Design and Implementation of Geospatial Information Systems.

2022 *Research Internship, Canada Centre for Mapping and Earth Observation, Natural Resources Canada*

- Flood susceptibility mapping under climate change – 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.

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.

Awards, Scholarships & Memberships

2022-2023	Student Representative to Canadian Cartographic Association
2022	Canadian Cartographic Association Best Student Presentation Award
2022	Esri Young Scholars Award – First Runner Up
2021-2022	CRSNG-CREATE DOTS Program Scholarship
2021	Esri Canada Centre of Excellence App Challenge – First Runner Up
2020-2021	Geomatics Engineering Department FGS Award at the University of Calgary
2019-2022	Member of Esri Canada Centre of Excellence Student Associates
2018	SERG International Graduate Student Award

Professional Skills

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