

**Mingke Erin Li, Ph.D.**

Geosapiens

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[mli.erin1919@gmail.com](mailto:mli.erin1919@gmail.com) (+1) 506-998-9751**Education**

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- 2023 Ph.D., Geomatics Engineering, University of Calgary, Canada  
2019 M.Sc., Forestry, University of New Brunswick, Canada  
2017 B.Sc., GIScience, Nanjing Forestry University, Nanjing, China

**Research Interests**

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

**Peer-reviewed Publications**

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- 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.

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**Conference Presentations**

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- 2023 **Li, M.** Flood susceptibility analysis on hexagonal grid meshes: a case study in southern New Brunswick, Canada. Poster presentation at GIS in Education and Research Conference, Mar. 2023, Toronto, Canada.
- 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-temporal patterns of spruce budworm defoliation within measured plots in Québec. The 9<sup>th</sup> 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.

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**Other Invited Talks**

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- 2022 Flood Susceptibility Modeling in Discrete Global Grids under Climate Change Scenarios. Presented at the Canada Centre for Mapping and Earth Observation, 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 Canada Centre for Mapping and Earth Observation, Natural Resources Canada, Apr. 2021, Online.

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**Work Experience**

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2023-present *GIS Scientist, Geosapiens*

- DEM modeling with forests and buildings removed.
- Fluvial flood model calibration.
- Coastal flood model development.
- On-the-fly operations and visualization on serverless Lambda DGGs.

- 2020-2023     *Lab Instructor, 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.

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### **Awards, Scholarships & Memberships**

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- 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

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### **Professional Skills**

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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