

# Maryam Torkashvand

[Portfolio](#) | [LinkedIn](#)

*Ph.D. student specializing in GIS and Cartography with hands-on experience using ArcGIS Pro, ArcGIS Online, and Python for spatial data analysis, thematic map creation, and geoprocessing tasks. Passionate about developing workflows for data integration and contributing to GIS projects emphasizing data-driven insights and innovative mapping techniques.*

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## Education

**Ph.D., Geography - Geographic Information Science and Cartography** (GPA: 3.97) **2027 (Expected)**  
*University of Iowa, Iowa City, IA, USA.*

- Thesis: Spatial-Social Network Analysis for studying migration and the evolution of kinship networks.

**M.Sc., Remote Sensing and Geographic Information Systems - Satellite Meteorology** (GPA: 3.92) **2020**  
*Science and Research Branch, Islamic Azad University, Tehran, Iran.*

- Thesis: A new framework for risk assessment of groundwater pollution.

**B.E., Surveying Engineering** **2014**  
*Shahid Rajaei Teacher Training University, Tehran, Iran.*

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## Skills

**Programming & Software:** Python, R, ArcGIS (Pro, Online, StoryMaps, Survey123), PostGIS & PostgreSQL, HTML & CSS & JavaScript, D3.js.

**Analytical and Technical Skills:** Data Analysis and visualization, Modeling, Usability Testing, Model Validation, Big Data Analysis and Data Cleaning, Network Analysis.

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## Experience

**Research Assistant** **May 2023 – Present**  
*Department of Geographical and Sustainability Sciences, University of Iowa, IA, USA.*

- Developed an analytical workflow to geocode and map individuals' birthplaces from crowd-sourced family trees spanning over three centuries (NSF-funded project).
- Extracted migration patterns using network analysis and mapped spatial-social networks of over 30 million individuals.
- Developed a web map of U.S. migration structures and conducted usability testing to evaluate user experience and functionality.

**Research Associate (Summer Job)** **May 2024 – August 2024**  
*IIHR—Hydroscience & Engineering Department, University of Iowa, IA, USA.*

- Created "[Rivers and Risks](#)" story map using ArcGIS Pro, online, and srvey123. (NSF-funded project)
- Mapped nitrate/nitrite pollution and social vulnerability to correlate socioeconomic status with pollution exposure risk at various scales.
- Developed an animated map of Iowa state population growth and transportation developments from 1850 to 2020.

**Teaching Assistant** **Aug 2022 – May 2023**  
*Department of Geographical and Sustainability Sciences, The University of Iowa, IA, USA.*

- Instructed two hands-on laboratory classes on GIS, mentoring students in ArcGIS Pro applications.

**GIS Expert** **2014 – 2015**  
*RassadIran Surveying Company, Tehran, Iran.*

- Contributed to cadastral map development using ArcGIS for Tehran.
  - Evaluated elevation errors in road construction surveying projects.
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## Honors & Awards

- Best Student Paper Award, CaGIS + UCGIS Symposium - \$150 (June 2024)
- Regional Cartographic Conference Scholarship - \$200 (June 2024)
- I-GUIDE Summer School. Participated in a selective week-long immersive program for geospatial data science at UCAR. (August 2023)
- Travel Grants: ACM SIGSPATIAL (\$1000), Spatial Social Network Workshop (\$400), University of Iowa (\$500)

## Selected Publications

- **Torkashvand, M.** & Koylu, C. (2024). A Hierarchical Approach for Geocoding Birthplaces in Temporally Continuous Crowd-Sourced Family Tree Data. [CaGIS+ UCGIS Symposium](#), June 3, 2024, Columbus, OH, USA.
- **Torkashvand, M.**, Neshat, A., Javadi, S., Pradhan, B. (2021) New hybrid evolutionary algorithm for optimizing index-based groundwater vulnerability assessment method. *Journal of Hydrology*, 598, 126446. <https://doi.org/10.1016/j.jhydrol.2021.126446>.
- **Torkashvand, M.**, Neshat, A., Javadi, S., Yousefi, H. (2020) DRASTIC framework improvement using Step-wise Weight Assessment Ratio Analysis (SWARA) and combination of Genetic Algorithm and Entropy. *Environmental Science and Pollution Research*. <https://doi.org/10.1007/s11356-020-11406-7>.

## Publication List

[Google Scholar](#)

## Leadership & Involvement

### GIS Lab Representative

August 2024 – Present

*Geography Department Graduate Student Organization, University of Iowa*

- Acted as a liaison between the GIS Lab and the Graduate Student Organization, advocating for student needs.

### Mentor

Summer 2023, Summer 2024

*Secondary Student Training Program (SSTP), University of Iowa*

- Mentored a team of high school students in a summer program to be involved in real-world research projects.

### Participant

Spring 2024

*Bridging Domestic and Global Diversity Certification, University of Iowa*

- Completed leadership and cultural competency training.

### Student Leadership Trainer

August 2023

*Graduate Student Orientation, University of Iowa*

- Led orientation sessions for incoming international graduate students.

### Guest Lecturer

Fall 2023

*GEOG 2050: Foundations of GIS, University of Iowa*

- Delivered lectures on data classification methods with a focus on theoretical aspects.

## Selected Conference Presentations

- **Torkashvand, M.** & Koylu, C. (June 2024). A Hierarchical Approach for Geocoding Birthplaces in Crowd-Sourced Family Tree Data. *CAGIS+ UCGIS Symposium*, Ohio State University, Columbus, OH.
- Invited Speaker: Spatiotemporal Dynamics of a Meta-Coupled World. *IGUIDE Virtual Center*, March 2024.
- **Torkashvand, M.** & Koylu, C. (June 2023). Changes in Communication and Mobility Networks Post-COVID-19. *UCGIS Symposium*, Yale University, New Haven, CT.
- **Koylu, C.**, **Torkashvand, M.**, et al. (Nov 2022). Mapping Migration Regions Using Family Trees. *6th ACM SIGSPATIAL Workshop on Geospatial Humanities*, Seattle, WA.
- **Torkashvand, M.**, et al. (Sept 2019). Groundwater Vulnerability Assessment Using PSO Algorithm. *IAH2019 Congress*, Málaga, Spain.