

# YOUSEF KHAJAVIGODELLOU

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## EDUCATION AND CREDENTIALS

**Ph.D. Student in Geography (Spatial Science, Dual Major in ESPP), Fall 2021 – Present**  
Michigan State University, East Lansing, MI, U.S.A.

**Master of Science in G.I.S. & R.S., 2011**  
IAU University, Science and Research Branch, Iran

**Thesis:** Modelling Urban Development by Fuzzy Cellular Automata

**Supervisor:**

Dr. Ali Asghar Alesheikh, Professor, Ph.D. ([alesheikh@kntu.ac.ir](mailto:alesheikh@kntu.ac.ir))

**Bachelor of Science in Watershed Management Engineering, 2002**

The University of Kurdistan, Sanandaj, Iran

**Project:** Evaluation of Morphometries factors on watersheds drainage density in Kurdistan catchments. Kurdistan Province, Iran

**Supervisor:**

Dr. Kamran Chapi, Associate Professor, Ph.D. ([k.chapi@uok.ac.ir](mailto:k.chapi@uok.ac.ir))

## Academic Experience

### Teaching Experience:

#### ■ Michigan State University:

**TA and instructor for On-GEO:** Summer 2022, Fall 2022, Spring 2023, Summer 2023

**TA (GEO 363, GEO 325) – Fall 2023**

- **Azad University, Iran, 2011-2012,** Introduction to G.I.S. Introduction to Remote Sensing
- **PAYAM NOOR University, Iran, 2011-2012,** Introduction to G.I.S. Principle of Remote Sensing
- **Erbil Technical University, Kurdistan Region, Iraq, 2013-2014:** Introduction to G.I.S.
- **Salahaddin University, Kurdistan Region, Iraq, 2013-2015:**  
Introduction to G.I.S. Introduction to Global Position System. Introduction to Remote Sensing  
• Map Projection • Photogrammetry • Digital Mapping

## PROFESSIONAL EXPERIENCE

### **K.P.P. Consulting Engineers, West Azerbaijan, Iran**

#### **SURVEYOR ENGINEER (2004- 2006)**

Managed construction sites and updated boundary lines as needed. Recorded detailed Geo-Spatial data ensuring precision and complete accuracy. Utilized G.I.S. and R.S. to create and update forest and catchment maps, specifically Land Use and Land Cover Maps. Prepare and maintain sketches, maps, reports, and direct aerial surveys of specified geographical areas.

### **A.S.O. Consulting Engineers, G.I.S. and R.S. Department, Iran**

#### **MANAGER AND SUPERVISOR of GIS AND REMOTE SENSING PROJECT (2007-2013)**

Led team of engineers in several specialized G.I.S. projects in Iran. Utilized expertise in G.I.S. and R.S. to formulate digital maps and main geodatabases.

#### **Key Accomplishments:**

- ◆ Directed team in designing a Geo-database detailing groundwater network in west Iran.
- ◆ Oversaw and directed multiple initiatives, including.
  - Implementing a G.I.S. and Spatial Database for Watershed and Forest
  - Evaluation of Land Use/ Land Cover Changes in Bureau of Natural Resources, West Azerbaijan Province, Iran
  - G.I.S. and Cadastre Project, Designing Rural and Urban Maps using G.I.S., West Azerbaijan Province, Iran

## PUBLICATIONS

1. **Khajavigodellou Y.**, Alesheikh A., Fardad M., 2011. "Using Fuzzy Cellular Automat in Urban Growth Management," The Fifth Iran Data Mining Conference/IDMC 2011, Dec.13,14 Amirkabir University of Technology, Tehran, Iran. (**FARSI**)
2. FARDAD M., ALESHEIKH A., **KHAJAVIGODELLOU Y.**, 2011. "EVALUATION LANDSLIDE HAZARD MAPPING USING FUZZY LOGIC IN G.I.S.," THE FIFTH IRAN DATA MINING CONFERENCE/IDMC 2011, DEC.13,14, AMIRKABIR UNIVERSITY OF TECHNOLOGY, TEHRAN, IRAN. (**FARSI**)
3. Yousefi M., Fardad M., **Khajavigodellou Y.**,2011. "Integrating G.I.S. and Remote Sensing whit C.A. model for modeling urban development, a new approach to sustainable urban development," The Iran National Environment Conference, Dec. 28, The University of Malayer, Iran. (**FARSI**)
4. **Khajavigodellou Y.**, Alesheikh A., Fardad M., 2012." Using Fuzzy Cellular Automata Method In image processing and modeling urban development," The First Iran National Conference on Artificial intelligence in Electrical and Computer Engineering / NCAI 2012, Apr. 15, Azad University of Behbahan, Iran. (**FARSI**)
5. Fardad M., Alesheikh A., **Khajavigodellou Y.**, Hakimpoor F., 2012." Using Artificial intelligence and G.I.S. in landslide hazard mapping," The First Iran National Conference on Artificial Intelligence in Electrical and Computer Engineer / NCAI 2012, Apr.15, Azad University of Behbahan, Iran. (**FARSI**)
6. **Khajavigodellou Y.** Fardad M., Alesheikh A, Hakimpoor F., 2012.Using Artificial Neural Network - Cellular Automat in landslide hazard mapping, N.C.C. conference, Tehran, Iran (**FARSI**).

7. **Khajavigodellou Y.**, Alesheikh A, Chapi K, Hakimpour F., 2014, “Simulating urban expansion through cellular automata model on different neighborhoods size,” Spatial Accuracy 2014 conference, Michigan State University, East Lansing, MI, U.S.A. (**Poster**)
8. **Khajavigodellou Y.**, Alesheikh A, Abdulrazak A. S. Mohammed, Chapi K, Hakimpour F., 2014. “Excellent approach to modeling urban expansion by Fuzzy Cellular Automata – Agent Base Model,” SPIE Conference San Diego, U.S.A. (<https://doi.org/10.1117/12.2063097>)
9. **Khajavigodellou Y.**, Ali Asghar Alesheikh, Farshad Hakimpour, and Kamran Chapi, 2015, “Optimizing urban modeling based on the road network and land use/cover changes by using agent-based - cellular automata model,” Geo - computation 2015, U.T.D., U.S.A., 21 – 23 May 2015.
10. **Khajavigodellou Y.**, Jiaguo Qi., Mohammad Soltani., and Ziba Zarrin. An Optimal Water Food-Energy Management Pattern at a Watershed Scale: A Perspective for the Urmia Lake Basin. A.A.G. Annual Meeting, Denver, Colorado, U.S.A., 23 – 27 March 2023.
11. Synoptic Climatology since 1991” (J.A. Winkler, **Yousef Khajavigodellou**, Nathaniel Penrod, Meicheng Shen, and CarLee Stimpfel) Presentation to the Annual Meeting of the American Association of Geographers, Denver, Colorado, March 2023. (Invited, Panel on Advances in Climatology)
12. Khajavigodellou, Y., Qi, J., Chen, J., Nejadhashemi, A. P., Moore, N. J., & Zarrin, Z. (2023). Reframing the WEF Nexus to Prevent WEF Bankruptcy: Transboundary River Basin Water-Energy-Food Bankruptcy Challenges and Potential Solutions. *AGU23*.
13. Khajavigodellou, Y., Qi, J., Chen, J., Moore, N. J., Nejadhashemi, A. P., & Zarrin, Z. (2023). Transboundary Water Resource Conflicts: A New Cold War? *AGU23*.

#### **Ongoing Research Papers:**

1. Exploring the Interplay between Crop Selection, Agricultural Practices, and the Water-Energy-Food Nexus Dynamics: Lessons from the Urmia Lake Basin (**Completed and under review**)
2. Water-Energy-Food Nexus in Transboundary River Basins: Gaps, Challenges, and Opportunities to Increase the policy instruments impact of nexus Thinking: A Systematic Review
- 3.

## **AWARDS**

Excellence in Research Award, University of Kurdistan, IRAN. (2001/2002)  
Spatial Accuracy 2014, M.S.U. Travel Award, U.S.A. (2014)  
Geo - Computation 2015, N.S.F. travel award, U.S.A. (2015).  
Michigan State University AAGA PhD Fellowship (2021)  
Michigan State University CSS Summer 2021 Early Start Award  
Michigan State University CSS Summer 2022 Early Start Award  
Michigan State University CSS Summer 2023 Early Start Award

## **Software and Programming Skills.**

Python. R. CIVIL3D. ArcGIS. ArcGIS Pro. ERDAS IMAGINE. ENVI.

## **Research Interests**

Geographical Information Science. Remote Sensing. Water-Food-Energy Nexus, WEF  
Bankruptcy. Water Policy and Management., Deep Learning.

## **AFFILIATIONS**

- American Association of Geographers (Member)
- SPIE (Member)
- AGU (Member)

## **Languages**

Kurdish: Native, Azerbaijani: Native, Persian: Native, Turkish: fluent, English: fluent, Arabic:  
Medium