

Mehran Ghandehari

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Sex [male](#) | Date of birth [19/12/1987](#) | Marital status [Married](#)

CURRENT ACTIVITY

PhD Candidate and Graduate Assistant, Department of Geography, University of Colorado Boulder

EDUCATION

- 2014-now **Ph.D. Candidate (ABD)**
Geography-GIScience, Department of Geography, College of Arts and Sciences, University of Colorado Boulder, Boulder, Colorado, USA
- Dissertation Topic: Cross-Scale Analysis of Terrain-Adjusted Metrics
 - Advisor: Prof. Barbara P. Buttenfield
 - GPA: 3.95 / 4
- 2010-2012 **M.Sc. in Geospatial Information Systems (GIS)**
School of Surveying and Geospatial Engineering, College of Engineering, University of Tehran, Tehran, Iran
- Thesis Title: A Voronoi-base Algorithm for Medial Axis Extraction (Case Study: Watershed Delineation from River Networks), Grade: 4 / 4
 - Advisor: Dr. Farid Karimipour
 - GPA: 3.65 / 4
- 2006-2010 **B.Sc. in Civil Surveying (Geomatics)**
Department of Surveying and Geomatics Engineering, College of Engineering, University of Isfahan, Isfahan, Iran
- Thesis Title: Optimization and Design of Geodetic Networks Using Static and Kinematic GPS Measurements, Grade: 20/20
 - GPA: 3.41 / 4
- 2002-2006 **Diploma and Pre-University Courses in Physics and Mathematics**
Salamat high school, Isfahan, Iran
- GPA: 3.47 / 4

RESEARCH INTERESTS

- Geographic Information Science: Geocomputation, Geospatial Computational Geometry, Spatial Data Mining
- Environmental Modelling: Terrain Modelling, Lidar, GIS Applications in Water Resources
- Scientific Visualization: Analytical Cartography, Map Projections

AWARDS & HONORS

- 2018 May Received the Solstice graduate research award, Geography department, University of Colorado Boulder
- 2018 Apr Received outstanding teaching assistant award, the department of Geography annual award for excellence in graduate teaching, University of Colorado Boulder
- 2018 Apr Receive the James A. and Jeanne B. DeSana graduate research scholarship to support graduate student research
- 2018 Feb Received the ASPRS Rocky Mountain Region scholarship 2018 in the doctorate category, American Society for Photogrammetry and Remote Sensing, Rocky Mountain Region
- 2017 Mar Received the Beverly Sears graduate student grant 2017, University of Colorado Boulder
- 2017 Feb Awarded travel fund to attend the 28th International Cartographic Conference in Washington, DC (The funds were obtained through a National Science Foundation (NSF) grant)
- 2016 Dec Received scholarship to participate in the basics of supercomputing boot camp January 9-10, 2017 (<https://www.rc.colorado.edu/meetings/basicsofsupercomputing2017>)
- 2016 Jul Received the 2016 GIS Colorado Scholarship
- 2016 Sep Received the 2016 United Government of Graduate Students UCB travel grant
- 2015 Apr Received the first poster award in the 10th Annual Hydrologic Sciences Research Symposium
- 2014 Mar Awarded travel fund from Geography department of CU Boulder to cover the cost of traveling to the United States.
- 2012 Selected as a member of National Elites Foundation (Society of prominent students of the country) of Iran
- 2012 Received the top student award in M.Sc. program, College of Engineering, University of Tehran, Tehran, Iran
- 2010-2012 Two Years Graduate Program Scholarship, Ministry of Science, Research and Technology, Iran
- 2010 Jul Ranked the 2nd among 1553 applicants in the national M.Sc. entrance exam, Iran
- 2009 Selected as the exceptional talented student by the University Educational Committee, University of Isfahan, Isfahan, Iran
- 2009 Received the top student award in B.Sc. program, College of Engineering, University of Isfahan, Isfahan, Iran
- 2006-2009 Four Years Undergraduate Program Scholarship, Ministry of Science, Research and Technology, Iran

PUBLICATIONS

Journal Papers

1. **Mehran Ghandehari**, and Barbara P. Buttenfield (2018). 'Comparing the Accuracy of Interpolated Terrain Elevations Across Spatial Resolution', *the International Journal of Remote Sensing*, Under revisions.
2. Farid Karimipour, **Mehran Ghandehari**, and Hugo Ledoux (2013). 'Watershed Delineation from the Medial Axis of River Networks', *Computers & Geosciences*, Vol. 59, No. 3, pp. 132-147.
3. Farid Karimipour and **Mehran Ghandehari** (2013). 'Voronoi-based Medial Axis Approximation from Samples: Issues and Solutions', *Transactions on Computational Sciences Journal*, LNCS 8110, Vol. 20, pp. 138-157.
4. **Mehran Ghandehari** and Farid Karimipour (2013). 'A New Method for Road Centerline Extraction using the Medial Axis', *Journal of Geomatics Science and Technology*, Vol. 2, No. 3, pp. 71-87 (In Persian).
5. **Mehran Ghandehari**, Mohsen Goodarzi, and Masumeh Hamidi (2013). 'A New Method for Detecting Single and Cluster Blunders of Digital Elevation Model Based on the Genetic Algorithm', *Geospatial Engineering Journal*, Vol. 3, No. 4, pp. 1-8 (In Persian).

Conference Papers

1. **Mehran Ghandehari**, and Barbara P. Buttenfield (2018). 'Slope-Adjusted Surface Area Computations in Digital Terrain', *Proceedings of Geomorphometry 2018 conference, the 5th International Conference of the ISG*, Boulder, Colorado, August 13-17
2. **Mehran Ghandehari**, Barbara P. Buttenfield, and Carson J. Q. Farmer (2017). 'Cross-Scale Analysis of Sub-Pixel Variations in Digital Elevation Models', In: M. P. Peterson (Ed.), *Advances in Cartography and GIScience 2017*, Lecture Notes in Geoinformation and Cartography (LNGC), Springer, Cham. pp. 359-373.
3. Barbara P. Buttenfield, **Mehran Ghandehari**, Stefan Leyk, Lawrence V. Stanislawski, Meg Brantley, and Yi Qiang (2016). 'Measuring Distance "As the Horse Runs": Cross-Scale Comparison of Terrain-Based Metrics', *The 9th International Conference on Geographic Information Science, GIScience 2016*, Montreal, Canada, September 27-30
4. Farid Karimipour, **Mehran Ghandehari**, and Hugo Ledoux (2013). 'Medial Axis Approximation of River Network for Catchment Area Delineation', *Developments in Multidimensional Spatial Data Models*, Abdul Rahman, A. and Boguslawski, P. and Gold, C. and Said, M.N. (Eds.). Lecture Notes in Geoinformation and Cartography (LNGC), Springer-Verlag Berlin Heidelberg. pp. 1-15.
5. **Mehran Ghandehari** and Farid Karimipour (2012). 'Voronoi-based Curve Reconstruction: Issues and Solutions', In: B. Murgante et al. (Eds.) *In Proceedings of the International Conference on Computational Science and Its Applications (ICCSA 2012)*, Salvador de Bahia, Brazil, June 18-21, 2012, Lecture Notes in Computer Science (LNCS), Springer-Verlag Berlin Heidelberg, Vol. 7334, pp. 194-207.
6. **Mehran Ghandehari** (2013). 'Digital Elevation Model Approximation from Stream Networks: A Reversed Approach', *ISPRS Proceedings of the 2nd International Conference on the Sensors & Models in Photogrammetry and Remote Sensing Conference (SMPR 2013)*, Tehran, Iran, October 5-8, 2013, pp. 175-180.
7. Farid Karimipour and **Mehran Ghandehari** (2012). 'A Stable Voronoi-based Algorithm for Medial Axis Extraction through Labeling Sample Points', *IEEE Proceedings of the 9th International Symposium on Voronoi Diagrams in Science and Engineering (ISVD 2012)*, New Jersey, USA, June 27-29, 2012, pp. 115-123.
8. **Mehran Ghandehari** and Farid Karimipour (2012). 'Computational Geometry and its Applications in GIS (Case Study: Voronoi Diagram)', *In Digital Proceedings of 19th Iranian National Conference on Geomatics (Geomatic 91)*, Iranian National Cartographic Center, Tehran, Iran, May 7-9, 2012 (In Persian).

PROFESSIONAL EXPERIENCE

Research Experiences

- 2017 (Summer) Graduate Research Assistant, Data Harmonization Project (Barbara P. Buttenfield, P.I.), Earth lab, University of Colorado at Boulder (<http://www.colorado.edu/earthlab/>)
- 2017 (Summer) Project Assistant, Coding World Equal Area Map Projections (Dr. Abbass Bazeghi , P.I., equalareamaps@gmail.com)
- 2015 (Summer) Graduate Research Assistant, Feature Extraction from DEM and LiDAR (Barbara P. Buttenfield, P.I.), Department of Geography, University of Colorado at Boulder
- 2010 -2012 Graduate Research Assistant, A Voronoi-base Algorithm for Medial Axis Extraction, (Farid Karimipour, P.I.), Department of Surveying and Geomatics Engineering, University of Tehran, Tehran, Iran

Teaching Experiences

- 2014-now Teaching Assistant, Department of Geography, University of Colorado Boulder
- GIS Programming - GEOG4303/5303 (Spring 2018); Instructor: Prof. Stefan Leyk
 - Cartography, Information Design and Representation - GEOG3053 (2015, 2016, and 2017), Instructors: Prof. Barbara Buttenfield, Dr. David Parr, Dr. Sara Kelly, Dr. Eric Lovell
 - Introduction to GIS - GEOG4103/5103 (Fall 2014, Spring 2015), Instructors: Prof. Barbara Buttenfield, Dr. Chris Anderson
- 2012-2014 Part-time Instructor, Geomatics Department, Daneshpajooan University, Isfahan, Iran
- Introduction to GIS
 - GIS Applications
 - GIS Software
 - Theory of GPS
- 2011-Feb Invited lecturer, GIS&RS department, Graduate University of Kerman, Kerman, Iran
- ArcMap 9.3 software (2-day workshop)
- 2011 Teaching Assistant, Department of Surveying and Geomatics Engineering, University of Tehran, Tehran, Iran
- Introduction to GIScience, Instructor: Dr. Farid Karimipour
- 2008 Teaching Assistant, Department of Surveying and Geomatics Engineering, University of Isfahan, Isfahan, Iran
- Least Square and Error Adjustment, Dr. Jamal Asgari

Industrial

- 2008-2009 Maintaining and troubleshooting of GPS permanent station, University of Isfahan, Isfahan, Iran
- 2012-2013 Part-time Consultant of GIS Division in the Afraz Naghshe Arya consulting Eng. Co., Isfahan, Iran

TRAINING WORKSHOPS / CERTIFICATES

2018-Mar	The 2018 Esri Developer Summit, March 6-9, Palm Springs, California (Participating in various workshops such as ArcGIS Pro, Python, ArcGIS Pro SDK for .NET, ArcGIS Online, ArcGIS API for Python, WebGIS)
2018-Feb	Google Earth Engine Workshop, February 26, Google, Boulder, Colorado
2017- Aug	Amazon Web Services training, Earth Lab, Boulder, Colorado
2017- Aug	RMACC High Performance Computing Symposium, August 15-17, Boulder, Colorado
2016- Jan	Basics of Supercomputing Bootcamp on January 9-10, 2017 https://www.rc.colorado.edu/meetings/basicsofsupercomputing2017
2015 & 2016	ESRI Online Certifications: <ul style="list-style-type: none"> ▪ Basics of Python (May 12th, 2015) ▪ Python Scripting for Geoprocessing Workflows (May 13th, 2015) ▪ Terrain Analysis Using ArcGIS Pro (Sep 20th, 2015) ▪ Distance Analysis Using ArcGIS (Oct 9th, 2015) ▪ Getting Started with Cartographic Representations (Oct 1th, 2016) ▪ 3D Analysis of Surfaces and Features Using ArcGIS (Oct 4th, 2016)
2016-Jul	ESCO DEM Building Workshop, July 21-22, Boulder, Colorado
2014 & 2015	Colorado Learning and Teaching with Technology 2014 Conference, Boulder, Colorado Colorado Learning and Teaching with Technology 2015 Conference, Boulder, Colorado
2015-Jul	2015 Esri International User Conference, July 20-24, San Diego, California (Participating in various workshops such as 3D Analysis, Arcpy, ArcGIS Pro, Geostatistical analysis, Data Visualization)
2015-Aug	RMACC High Performance Computing Symposium, August 15-17, Boulder, Colorado
2015-Jan	Software Carpentry, Institute of Arctic and Alpine Research (INSTAAR), Jan 7-9, Boulder, Colorado (http://geocarpentry.github.io/2015-01-07-instaar/)

TECHNICAL SKILLS

Mother tongue(s)	Farsi (Persian)
Other language(s)	English
Computer skills Proficiency (1:lowest, 5:highest)	<ul style="list-style-type: none"> ▪ GIS: ArcMap (4), QGIS (2), ArcGIS Pro (2) ▪ Programming languages: C++ (2), C# (2), Matlab (3), Python (4), R (2), Java script (1). ▪ Cloud Computing: Google Earth Engine API (1), Amazon Web Services (1), Docker (1), ArcGIS Enterprise in the Amazon Cloud (2). ▪ Operating Systems: Windows (4), Mac (3). ▪ Web server/web design: ArcGIS Online (3), Apache (2), HTML (2), CSS (2), XML (2),

- GeoServer (1), WordPress, Desktop Server (2)
- Software tools: Microsoft Office (4), Endnote (4).
- Graphic Packages: Adobe Photoshop (2).
- Database: SQL Server (1), Oracle (1).
- Autodesk: AutoCAD (2), AutoCAD Civil 3D (1).

Sport

- Former professional Taekwondo athlete for more than 8 years; Participant at many high level national Taekwondo competitions; Achieving more than ten medals at national Iranian competitions (Getting the first degree in 1998 and the last in 2008). Currently I am a rock climber!

SELECTED COURSES

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|-------------------------------------|---|
| ▪ GIS: Modelling and Applications | ▪ Advanced Geospatial Information Systems |
| ▪ GIS Programming | ▪ Computational Geometry |
| ▪ Quantitative Methods in Geography | ▪ Spatial Database |
| ▪ Remote Sensing | ▪ Web GIS |
| ▪ Artificial Intelligence | ▪ Location Base Services |
| ▪ Digital Terrain Modelling | ▪ Photogrammetry |
| ▪ Land Information System | ▪ Geodesy |
| ▪ Advanced Programming (C++) | ▪ Surveying |
| ▪ GPS and GNSS | |

MEMBERSHIPS

- International Cartographic Association (ICA) (2016-2017)
- Community Surface Dynamics Modeling System (CSDMS)
- American Society for Photogrammetry and Remote Sensing (ASPRS) (2016, 2017, 2018)
- The professional land surveyors of Colorado (PLSC) (2016)
- GIS Colorado (GISCO) (2016-2017)
- American Geophysical Union (AGU) (2016)
- The Rocky Mountain chapter of the Urban and Regional Information Systems Association (RM-URISA) (2016)
- National Cartographic Center of Iran (2008-2013)
- ICA Commission on Map Projections, Generalisation and Multiple representation

REFeree/REVIEWER/ VOLUNTEERING

- Judge projects for the 2018 GLOBE International Virtual Science Symposium (<https://www.globe.gov/>)
- Member of GIS Colorado scholarship committee (Sandy Malesky, Chair, smalesky@cityofwestminster.us) (2017, 2018)
- GeoMentor (AAG-Esri ConnectED GeoMentors Program) (2017, 2018)

REFERENCES

Prof. Barbara P.
Buttenfield

Professor, Dep. Of Geography, University of Colorado at Boulder
Phone (Cell): +1 (303)4923618, Email: babs@colorado.edu

Dr. Stefan Leyk

Associate Professor, Dep. Of Geography, University of Colorado at Boulder
Email: stefan.leyk@colorado.edu

Dr. Carson Farmer

Assistant Professor, Dep. Of Geography, University of Colorado at Boulder
Email: carson.farmer@colorado.edu

Documents and further information are available upon request