



Salar Ghaffarian

As a Geographic Information Scientists and MSc Candidate in the Department of Geography, at the University of Calgary, I am passionate to develop my research in Urban Thermal Remote Sensing and Machine Learning, in which I can apply my previous experiences in entrepreneurship and Geomatics Engineering. This is possible by being awarded a competitive UCalgary, MSc scholarship and beginning my new academic journey under the supervision of Dr. Geoffrey J. Hay (Sept' 2018). Dr. Hay is also a Co-Founder of [MyHEAT](#), an award winning online urban heatloss and GHG mapping company with over 43 web-enabled cities, covering 11,000sq.km and 9 million people. I am excited to engage in sustainability research directly tied to this project.

Personal Details

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Skills

Programming language

- MATLAB -> (100 %)
- Python -> (100 %)
 - Tensorflow and Keras
 - Pytorch
 - OpenCV
- RStudio -> (30 %)

Geomatics Software

- ENVI -> (100 %)
- ArcGIS -> (100 %)
- QGIS -> (100 %)
- eCognition -> (80 %)
- PCI Geomatica -> (50 %)
- Lastools -> (40 %)
- Pix4D -> (30 %)
- Photomodeler -> (30 %)

Designing Software

- AutoCAD -> (100 %)
- Photoshop CS6 -> (100 %)

Education

- Master of Science (M.Sc.), Geography, the Department of Geography, University of Calgary, Calgary, Alberta, Canada, (GPA= 3.825 / 4.00). (Sep. 2018)
- Master of Science (M.Sc.), Geomatics Engineering, Graduate School of Fine Geomatics Engineering Department, Hacettepe University, Ankara, Turkey, (GPA= 3.68 / 4.00). (Sep. 2012/Jun. 2015)
- Bachelor of Science (B.Sc.), Civil Engineering, School of civil Engineering, Islamic Azad University, Tabriz, Iran, (GPA=3.35/4.00). (Sep. 2004/Dec. 2009)

Training and on-line courses

- Introduction to Deep Learning with OpenCV - LinkedIn Learning (Online Course). (Feb. 2020)
- Python GUI Development with Tkinter - LinkedIn Learning (Online Course). (Feb. 2020)
- Computer Vision and Image Analysis - Edx.org (Online Course). (Jan. 2020)
- Google Colab (Google Cloud Platform) - Howsam.org (Online Course). (Sept. 2019)
- Building Deep Learning models with Pytorch – Howsam.org (Online Course). (Sept. 2019)
- Fundamentals of MLP and CNNs – Howsam.org (Online Course). (Sept. 2019)
- Image Processing with Keras – Datacamp (Online Course). (July 2019)
- Introduction to Deep Learning in python – Datacamp (Online Course). (May 2019)
- Deep Learning, Offered by Stanford, Coursera (Online Course). (Jan. 2019)
- Python for Deep Learning - Faradars (Online course). (Dec. 2018)
- Python Programming (Intermediate to Advanced level) - Faradars (Online course). (Nov. 2018)
- Python Programming (Basic to Intermediate level)- Faradars (Online course). (Nov. 2018)

Skills

Language Skills

- English -> (80 %)
- Turkish (Native) -> (100 %)
- Persian -> (100%)
- Azeri (Mother Tongue) -> (100 %)

Personal Skills

- Creativity -> (100 %)
- Organization -> (90 %)
- Commutation -> (90 %)
- Team Work -> (90 %)
- Commitment -> (90 %)
- Management -> (90 %)

Non-Academic Activities

- Reading Books - Science-Fiction
- Doing Sports (e.g. Biking, Dancing, Mountain Climbing, Bodybuilding, Swimming)
- Socializing with New People and Finding New Friends
- Traveling
- Photography

Experiences

Volunteering Experiences

- Voluntary member of blood donation center
- Voluntary member in Iranian Society of Organ Donation
- Voluntary member of Iranian Red Crescent
- Doing free educational consulting through Telegram – Instagram
- YouTube Channel - Aparat Channels every day for an hour
- Providing financial support for the Girls' welfare Center in Tabriz by donating 50% of income from ApplyMarket company to the center each month.
- Taking part in Graduate College Volunteering Activities
- Organizing workshops and events in IGSA.

- Complete Remote Sensing Image analysis with ENVI software - Udemy (Online course). (Oct. 2018)
- Machine Learning; On-line course, Stanford University. (Aug. 2017)
- Pedagogy; Institute of Technology, Tabriz, Iran. (Jun. 2016)
- How to succeed at writing applications; On-line course, Sheffield University. (Jun. 2016)
- Author Workshop (Springer); Hacettepe University, Ankara, Turkey. (May 2014)

Thesis and seminars

- M.Sc. thesis: "An approach for automatic building extraction from high resolution satellite images using shadow analysis and active contours model" Supervisor: Prof. Dr. Mustafa Turker.
- Salar Ghaffarian, "Introducing canny edge detector method and compare it with other edge detectors", In-term research in Seminar course, Ankara, Turkey, 2013. (Presenter)
- Salar Ghaffarian, "How to write a scientific paper?", Shabakeh Danesh Institute, Tabriz, Iran, 2017. (Presenter)

Publications

Journal Papers

- Saman Ghaffarian, **Salar Ghaffarian**, "Automatic building detection based on Purposive FastICA (PFICA) algorithm using monocular high resolution Google Earth images", ISPRS Journal of Photogrammetry and Remote Sensing, Volume 97, November 2014, Pages 152-159, ISSN 0924-2716, <http://dx.doi.org/10.1016/j.isprsjprs.2014.08.017>.
- "Automatic histogram-based fuzzy C-means clustering for remote sensing imagery", Saman Ghaffarian, **Salar Ghaffarian**, ISPRS Journal of Photogrammetry and Remote Sensing, Volume 97, November 2014, Pages 46-57, ISSN 0924-2716, <http://dx.doi.org/10.1016/j.isprsjprs.2014.08.006>.
- "A Novel Automatic Building Extraction from High Resolution Satellite Images Taking the Advantages of shadow areas", **Salar Ghaffarian** and Mustafa Turker, (forthcoming).

Conference Papers

- "A novel Object-based Deep learning method for residential rooftops extraction using H-Res Thermal imagery", **Salar Ghaffarian** and Geoffrey J. Hay., July 2020, in GEOBIA 2020 Conference, Salzburg, Austria.
- "Machine Learning Optimization to Extract Residential Rooftops from H-Res Thermal Imagery", **Salar Ghaffarian** and Geoffrey J. Hay., March 2020, in 57th Annual Geography Department Confernece, University of Calgary.
- "Web Based Automatic Building Extraction Using Deep Learning", **Salar Ghaffarian**, and Meysam Asgari-chenaghlu 2018., in Geobia2018 Conference in Montpellier. (Accepted for oral presentation)

Leadership Experiences

- Founder of ApplyMarket company in Iran
- Chief Executive Officer of ApplyMarket company
- Vice President of IGSA Career Club (Iranian Graduate Student Association)

Membership and Reviewer/Referee

- Member of the Iranian young researcher's club
- Iranian Organization for Engineering Order of Building Province East Azerbaijan
- IEEE Transactions on Cybernetics Journal
- ISPRS Journal of Photogrammetry and Remote Sensing
- Chief manager and founder of "R&D leading group"
- Member of Graduate College Club, University of Calgary, (Sept. 2018 –Sept. 2019)
- Vice President of IGSA (Iranian Graduate Student Association) Career Club. (May 2019 – Present)

- "Automatic Building Roof Segmentation Based on PFICA Algorithm and Morphological Filtering from LiDAR Point Clouds", Saman Ghaffarian, **Salar Ghaffarian**, Youssef El merabet, Zineb Samir and Yassine Ruichek, 37th ASIAN CONFERENCE ON REMOTE SENSING (ACRS 2016).
- "Solar Energy Potential Analysis of Building Roofs Using Lidar and High-Resolution Aerial Images", **Salar Ghaffarian**, Serkan Ural and Mustafa Turker. ISPRS International Conference, 23-25 November 2015, Kish Island, Iran. (Accepted Abstract)
- "A Web-based Accuracy Assessment System for Object Detection and Image Classification Methods Using Remote Sensing Imagery", Saman Ghaffarian, Yiğit Çetinel, and **Salar Ghaffarian**, 3rd ISPRS International Conference on Sensors and Models in Photogrammetry and Remote sensing (SMPR2015), Nov. 23-25, 2015 in Kish Island, Iran, (www.impaa.org). (Accepted Abstract)
- "Automatic Building Detection Based on Supervised Classification using High Resolution Google Earth Images", **Salar Ghaffarian** and Saman Ghaffarian, ISPRS Technical Commission III, Photogrammetric Computer Vision Conference in Zurich Switzerland, 2014. Doi:10.5194/isprsarchives-XL-3-101-2014. (accepted for oral /poster presentation)
- "Automatic Building-Based Map Updating Using ICA-Based Change Detection and Snake Algorithm", Saman Ghaffarian and **Salar Ghaffarian**, in 5th Geobia Conference in Thessaloniki, Greece, 2014. (Accepted Abstract)
- "Automatic Building-Based Map Updating Using Classification-based change detection and Snake algorithm", Saman Ghaffarian and **Salar Ghaffarian**, ISPRS Technical Commission I Symposium, Sustaining Land Imaging: UAVs to Satellites, Denver, Colorado USA, 2014.

Honors and Achievements

- Alberta Graduate Excellence Scholarship (AGES) November 2019, (**\$11,000 (CND)**).
- Geovation Scholarship of Excellence, Department of Geography, University of Calgary, August 2019, (**\$5,000 (CND)**).
- The University of Calgary Graduate College Residence Scholarship 2018-2019, (**\$3,000 (CND)**).
- Geography MSc Graduate Scholarship in GEOBIA & Urban Remote Sensing, (**\$50,000/yr (CND)**), September 2018-2020.
- Ranking **5th place in SCIEDIRECT TOP 25 list of most downloaded articles**, for "Automatic Histogram-Based Fuzzy Clustering for Remote Sensing Imagery" journal article, October to December 2014.
- Ranking **9th place in SCIEDIRECT TOP 25 list of most downloaded articles**, for "Automatic Building Detection Based on Purposive FastICA (PFICA) Algorithm using Monocular High-Resolution Google Earth Images" journal article, October to December 2014.
- One-year scholarship for the best international students in Hacettepe University, Ankara, Turkey. (January 2014 - January 2015) (**\$1,800 (CND)**).
- Three-years scholarship for the best student in Islamic Azad University, Tabriz, Iran (September 2005 - September 2008). (**\$1,000 (CND)**).

References

Dr. Geoffrey J. Hay

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(<http://aes.hacettepe.edu.tr/kteke>)

- Outstanding publication award, TUBITAK institution, UBYT publication encouragement award program, Turkey, 3700 TL, for “Automatic Histogram-Based Fuzzy C-Means Clustering for Remote Sensing Imagery” journal article, January 2015. (**\$2,800 (CND)**).
- Outstanding publication award, TUBITAK institution, UBYT publication encouragement award program, Turkey, 3700 TL, for “Automatic building detection based on Purposive FastICA (PFICA) algorithm using monocular high-resolution Google Earth images” journal article, January 2015. (**\$2,800 (CND)**).

Work Experience

- Chief manager and founder of “R&D leading group”. (Sept./2016 - Present).
- Chief educational consultant in "Shabakeh Danesh Institute", (Jan./2017 - Present).
- Teaching Experience: Using Matlab in Image Processing - Image Processing (Sept./2015 - Sept./2017).
- Teaching Experience: GRE (Graduate Record Examinations) quantitative - ALES (Graduate education entrance exam of Turkey Universities) (March/2012 - Sept./2012)
- Teaching Courses on ‘How to Write an Outstanding Paper’
- Working as a Civil Engineer in one of the school's renovation projects in Tabriz, Iran. Organization for Development, Renovation and Equipping Schools of I.R. IRAN). (Oct./2011 - Jan./ 2012).

Research Interests

- Geographic Object-Based Image Segmentation and Classification,
- Automatic Building Detection Using Remotely Sensed Images,
- Automatic Clustering of Remote Sensing Images,
- Knowledge-Based Clustering of Remote Sensing Images,
- Automatic/Knowledge-Based Change Detection Using Remote Sensing,
- Using Machine Learning/Deep Learning Techniques for Object Detection