Curriculum Vitae

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I. PERSONAL INFO

Name : **Heidar Rastiveis**, Ph.D.
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West Lafayette, IN, 47907
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II. EDUCATION

Ph.D.: Civil Engineering (Specialty: Geomatics-Photogrammetry), Faculty of Engineering, University of Tehran, Tehran, Iran, **2013**

Dissertation: *Automatic Damage Assessment Based on Decision-Level Fusion of High-Resolution Satellite Imagery,*

M.Sc.: Civil Engineering (Specialty: Geomatics-Photogrammetry), Faculty of Engineering, University of Tehran, Iran, Tehran, **2007**

Thesis: *Detection of Post-Earthquake Destructed Buildings Using Satellite Imagery*

B.Sc.: Civil Engineering (Specialty: Geomatics), Faculty of Engineering, University of Isfahan, Iran, Isfahan, Iran, **2005**

III. ACADEMIC & PROFESSIONAL EXPERIENCES

SEP 2022-Date: Postdoctoral Research Associate, Digital Photogrammetry Research Group (DPRG), Lyles School of Civil Engineering, Purdue University, West Lafayette, IN, USA

SEP 2018-June 2022: Head of the Photogrammetry Division, Douryab Consulting Eng. Co., Tehran, Iran

FEB 2014- FEB 2019: Assistant Professor (As Mandatory Military Service), School of Surveying and Geospatial Engineering, Faculty of Engineering, University of Tehran, Tehran, Iran

SEP 2013- FEB 2014: Lecturer, School of Surveying and Geospatial Engineering, Faculty of Engineering, University of Tehran, Tehran, Iran

JUL 2013-AUG 2015: Head of the Photogrammetry and Remote Sensing Division, Rahbord Naghshe Atlas (RANA) Consulting Engineers Co., Tehran, Iran

JUL 2007-MAY 2013: Visiting Lecturer, Islamic Azad University, Bonab/Maragheh/Qazvin, Iran

IV. REFEREED JOURNAL PAPERS

- Shams A., Sarasua W.A., Russell B.T., Davis W.J., Post C., Rastiveis H., Famili A., Cassule L., 2022, Extracting Highway Cross Slopes From Airborne and Mobile LiDAR Point Clouds; Transportation Research Record, link
- Seydi, S. T., **Rastiveis, H.**, Kalantar, B., Halin, A. A., & Ueda, N., **2022**. BDD-Net: An End-to-End Multiscale Residual CNN for Earthquake-Induced Building Damage Detection. Remote Sensing, 14(9). link

- Shokri, D., **Rastiveis, H.**, Sheikholeslami, S. M., Shahhoseini, R., & Li, J., **2021**. Fast extraction of power lines from mobile LiDAR point clouds based on SVM classification in non-urban area. Earth Observation and Geomatics Engineering, 5(2), 63-73. link
- Shokri, D., **Rastiveis, H.**, Sarasua, W. A., Shams, A., Homayouni S., **2021**. A Robust and Efficient Method for Power lines Extraction from Mobile LiDAR Point Clouds. PFG – Journal of Photogrammetry, Remote Sensing and Geoinformation Science, 89 (1). link
- Eslamizade, F., **Rastiveis, H.**, Khodaverdizahraie N., and Joybari A., Shams, A., **2021**. Decision Level Fusion of Satellite Imagery and LiDAR Data for Post-Earthquake Damage Map Generation in Haiti. Arabian Journal of Geosciences, 14 (12), 1120. link
- Safaie A.H., **Rastiveis, H**., Shams, A., Sarasua W. A., Li, J., **2021**. Automated street tree inventory using mobile LiDAR point clouds based on Hough transform and active contours. ISPRS Journal of Photogrammetry and Remote Sensing, 174, 19-34. link
- **Rastiveis, H.**, Shams, A., Sarasua, W., and Li, J., **2020**. Automated Extraction of Lane Markings from Mobile LiDAR Point Clouds based on Fuzzy Inference. ISPRS Journal of Photogrammetry and Remote Sensing, 160C, 149-166. link
- Hosseini, B., **Rastiveis, H.**, Homayoni S., **2020**. An Automated Framework for Plant Detection based on Deep Simulated Learning from Drone Imagery. Remote Sensing 12(21) 3521. link
- Khodaverdizahraie N., **Rastiveis, H.**, and Joybari A., **2020**. Segment-by-Segment Comparison Technique for Generation of an Earthquake-Induced Buildings Damage Map Using Satellite Imagery. International Journal of Disaster Risk Reduction 46, 101505. link
- Khodaverdizahraie N., **Rastiveis, H.**, and Joybari A., **2019**. Combination of Post-Earthquake LiDAR Data and Satellite Imagery for Buildings Damage detection. International Journal of Remote Sensing. Earth Observation and Geomatics Engineering, 3 (1), 12-20. link
- Pirasteh, S., Rashidi, P., **Rastiveis, H.**, Seydipour, H., Huang, S., Zhu, Q., Li, Y., Liu, G., Li, J., **2019**. Developing an Algorithm for Buildings Extraction and Determining Changes from Airborne LiDAR and Comparing with R-CNN Method from Drone Images. Remote Sensing, 11 (11), 1272. link
- Rashidi, P. and **Rastiveis, H.**, **2018**. Extraction of Ground Points from Lidar Data Based on Slope and Progressive Window Thresholding (SPWT). Earth Observation and Geomatics Eng. 2(1): 36-44. link
- Rezaei, M., Arefi, H., **Rastiveis, H.**, and Sajadian, M., **2018**. Building Extraction and Modeling Using LiDAR Point Clouds Imaging on Two-Dimensional Surface. Journal of Geomatics Science and Technology. 7(3):139-50. (in Persian) link
- **Rastiveis, H.**, Eslamizadeh, F., **2016**. Using Support Vector Machine to Generate Building Damage Map from Post-Event LiDAR Data. Engineering Journal of Geospatial Information Technology, 4(3), 77-87. (in Persian) link
- Gharibi, M., Arefi, H., **Rastiveis, H.**, and Hashemi, H., **2016**. Building Map Updating based on Active Contour Models. Journal of Geomatics Science and Technology. 5(4):211-225. (in Persian) link
- **Rastiveis, H.**, Saadatseresht, M., **2015**. Precise Measurement of retro-reflective Photogrammetric Targets Using Improved Ellipse Fitting Technique. Journal of Soft Computing and Information Technology, 4 (4), 40-50. (in Persian) link

- **Rastiveis, H.**, Samadzadegan. F., **2015**. Optimal Feature Selection in Clustering of Lidar Data Using GA Algorithm. Geospatial Engineering Journal, 7(1), 27-40. (in Persian) (link
- **Rastiveis, H.**, Samadzadegan, F., and Reinartz, P., **2013**. A Fuzzy Decision-Making System for Building Damage Map Creation Using High-Resolution Satellite Imagery. Natural Hazards and Earth System Sciences, 13(2), 455. link
- Amini, J., **Rastiveis, H**., 2007. α-shapes in Digital Terrain Modeling. Faculty of Engineering Journal, University of Tehran 40, no. 8: 1067. (in Persian) link

V. SELECTED REFEREED CONFERENCE PAPERS (ORAL)

- Seydi, T., **Rastiveis, H.** 2019. A Deep Learning Framework for Streets Damage Assessment Using Post-Earthquake Lidar Data. The International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences, XLII-4/W18, 483–488. Karaj, Iran. link
- Shokri, D., **Rastiveis, H.**, Shams, A., and Sarasua, W. 2019. Utility Poles Extraction from Mobile Lidar Data in Urban Area Based on Density Information. The International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences, XLII-4/W18, 483–488. Karaj, Iran. link
- Daneshtalab, S., **Rastiveis, H.**, Hosseini, B. 2019. CNN-Based Feature Level Fusion of High-Resolution Aerial Image and Lidar Data. The International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences, XLII-4/W18, 483–488. Karaj, Iran. link
- Zaboli, M., **Rastiveis, H.**, Hosseini, B., Shams, A., Sarasua, W.A., 2019. Classification of Mobile Terrestrial Lidar Point Clouds in Urban Area Using Local Features. The International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences, XLII-4/W18, 483–488. Karaj, Iran. link
- Hossein Pouraghdam, M., Saadatseresht, M., **Rastiveis, H.**, Abzal, A., And Hasanlou, M. 2019. Building Floor Plan Reconstruction from SLAM-Based Point Cloud Using RANSAC Algorithm. The International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences, XLII-4/W18, 483–488. Karaj, Iran. Link
- **Rastiveis, H.**, Khodaverdi Zahraie N., and Joybari A., 2018. Object-Oriented Classification of Lidar Data for Post-Earthquake Damage Detection. Gİ4DM (Geoinformation for Disaster Management), İstanbul. link
- Molaebrahimi, S., Arefi, H., **Rastiveis, H.**, 2017. Automatic Roof Complexity Evaluation in Urban Area Using LiDAR Point Cloud. The 2nd National Conference on Geospatial Information Technology, Tehran, Iran. link
- Khodaverdi Zahraie, N., **Rastiveis. H**., 2017. Object-Oriented Analysis of Satellite Images Using Artificial Neural Networks for Post-Earthquake Buildings Change Detection. ISPRS International Joint Conference, Tehran, Iran. link
- **Rastiveis, H.**, 2015. Decision level fusion of LIDAR data and aerial color imagery based on Bayesian theory for urban area classification. The International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences, 40(1), 589. link
- Samadzadegan F, **Rastiveis H.**, 2011. A clustering-based technique for automatic damage map generation using high-resolution satellite imagery. Gi4DM, Antalya, Turkey. link

VI. SELECTED REFEREED CONFERENCE PAPERS (POSTER)

- Hosseini, B. **Rastiveis, H.**, Daneshtalab, S., 2019. Hyperspectral Image Classification by Exploiting Convolutional Neural Networks. Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XLII-4/W18, 483–488. Karaj, Iran. link
- Rashidi, P., **Rastiveis, H.**, 2017. Ground Filtering LiDAR Data Based on Multi-Scale Analysis of Height Difference Threshold. International Archives of the Photogrammetry, Remote Sensing & Spatial Information Sciences, 225-229. link
- Abbaszadeh, S., and **Rastiveis, H.**, 2017. A Comparison of Close-Range Photogrammetry Using A Non-Professional Camera with Field Surveying for Volume Estimation. ISPRS International Joint Conference, Tehran, Iran. link
- Daneshtalab, S., **Rastiveis, H.**, 2017. Decision Level Fusion of Orthophoto and Lidar Data Using Confusion Matrix for Land Cover Classification. International Archives of the Photogrammetry, Remote Sensing & Spatial Information Sciences, 42. link
- **Rastiveis, H.**, Hosseini-Zirdoo, E., and Eslamizade, F., 2015. Automatic Blocked Roads Assessment after Earthquake Using High-Resolution Satellite Imagery. International Archives of the Photogrammetry. Remote Sensing & Spatial Information Sciences, 40. link
- **Rastiveis, H.,** Eslamizade, F., and Hosseini-Zirdoo, E., 2015. Building Damage Assessment After Earthquake Using Post-Event Lidar Data. International Archives of the Photogrammetry, Remote Sensing & Spatial Information Sciences, 40. link
- Samadzadegan, F., **Rastiveis, H.**, 2008. Automatic detection and classification of damaged buildings, using high-resolution satellite imagery and vector data. The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, 37, 415-420. link

VII. INVITED TALKS

- Rastiveis, H., 2016. Application of Remote Sensing Technology for Earthquake Damage Assessment in Iran, 2nd DRR Technology & Policy Sharing in Asian Countries Disaster Expert Conference, Yonsei University, Seoul, South Korea.

VIII. SUPERVISION EXPERIENCES

M.Sc. Thesis Supervisor:

- Zaboli, M., 2020. Deep Learning-Based Classification of Mobile Laser Scanning Point Cloud. University of Tehran, Iran
- Shokri, D., 2020. Automatic Power Lines Detection and Extraction from Mobile Laser Scanning Point Cloud. University of Tehran, Iran
- Iezadi, A., 2019. Geometrical Road Parameters Extraction from Mobile Laser Scanner Point Cloud. University of Tehran, Iran
- Mousakhani, S., 2019. Automatic Detection and Reconstruction of Road Traffic Signs from MLS Data. University of Tehran, Iran
- Safaie, A.H., 2019. Automatic Tree Inventory in Road Environments using Mobile Laser Scanning Point Cloud. University of Tehran, Iran

- DaneshTalab, S., 2018. Automatic Building Extraction in Urban Environment Based on Decision Level Fusion of LiDAR Data and Aerial Imagery. University of Tehran, Iran
- Khodaverdi Zahraie, N., 2018. Change Detection of Building in Urban Environment Based on Object-Oriented Analysis of High-Resolution Satellite Imageries. University of Tehran, Iran
- Rashidi, P., 2018. 3D Change Detection of Buildings in Urban Areas Using LiDAR Data. University of Tehran, Iran
- Abbaszadeh, P., 2018. A Comparison of Close-Range Photogrammetry Using a Non-Professional Camera With Field Surveying for Volume Estimation. University of Tehran, Iran
- Eslamizadeh, Z. 2017. Fusion of High-Resolution Satellite Imagery and LiDAR Data for Post-Earthquake Buildings Damage Map Generation. University of Tehran, Iran
- Hosseini Zirdoo, Z. 2017. Fusion of High-Resolution Satellite Imagery and LiDAR Data for Post-Earthquake Roads Damage Map Generation. University of Tehran, Iran

M.Sc. Thesis Advisor:

- Gharibi, M., 2016. Building Map Updating based on Active Contour Models. (Supervisor: Dr. Hossein Arefi). University of Tehran, Iran
- Rezaie, M., 2016. Building Extraction and Modeling Using LiDAR Point Clouds Based on Two-Dimensional Surface Projecting. (Supervisor: Dr. Hossein Arefi). University of Tehran, Iran
- Mola Ebrahimi, S., 2017. Fusion of Remote Sensing Data for Building Inventory in Urban Area. (Supervisor: Dr. Hossein Arefi). University of Tehran, Iran

B.Sc. Project Supervisor:

- Tajoldin M., 2011. DTM Generation Using LiDAR Point Cloud. (Supervisor: Dr. Hossein Arefi). University of Tehran, Iran

IX. RESEARCH PROJECTS

2019-2022: CNN-Based Classification of Remote Sensing Data
- Studied and Analyzed the CNN-based classification of Remote Sensing Data

2018-Date: Road 3D Modeling from MLS Point Clouds.
- Studied and Analyzed Available Algorithms
- Designed and Developed a Toolbox for MLS data Processing

2018-2019: Automatic Plant Detection and Counting From UAV-based Images.

2016-2020: Fusion of LiDAR data and Aerial/Satellite Image for Classification.
- Studied, Analyzed, and Implemented Several Textural Features
- Designed and Implemented a Classification Toolbox Including Feature Extraction, Classification, and Evaluation Modules

2007-2022: Damage Assessment Based on Remote Sensing Data
- Studied and Analyzed the Potentiality of Several Remote Sensing Data for Damage Assessment

X. TEACHING EXPERIENCES

Undergraduate Courses: (University of Tehran, Islamic Azad University)
Basic Photogrammetry / Advanced Programming / Digital Image Processing / Underground Surveying / Basic Remote Sensing / Analytical Photogrammetry / Photogrammetry I-IV / Photogrammetry Lab I-IV / Aerial Triangulation / Ground Surveying / Route Surveying

Graduate Courses: (University of Tehran)
Digital Elevation Model / Soft Computations / Digital Image Processing / Change Detection and Analysis / Pattern Recognition / Data Fusion / New Topics in Photogrammetry

XI. INVITED EDITORIALS

- **Rastiveis, H.**, Olsen, M.J., Zhu, L., Ma, L., Masiero, A., (2021-2022)
  Special Issue: *Advances in Mobile Mapping Systems for Urban Digital Twins*
  International Journal of Applied Earth Observation and Geoinformation. link

XII. REVIEWER

IEEE Geoscience and Remote Sensing Letters / International Journal of Remote Sensing / Canadian Journal of Remote Sensing / ISPRS Journal of Photogrammetry and Remote Sensing / Earth Observation and Geomatics Engineering / IEEE Access / Building and Environment / Cybernetics and Systems / Geocarto International / Geospatial Information Science/ Photogrammetric Records

XIII. PROFESSIONAL MEMBERSHIPS

2012-Date: Iran Construction Engineering Foundation

2018-Date: Iranian Society of Surveying & Geomatics Engineering

2019-Date: ICA Commission on Sensor-driven Mapping

XIV. LANGUAGES

Kurdish (Mother Tongue) Persian (Native) English (Fluent)

XV. REFERENCES

Available Upon Request.