

# Curriculum Vitae

## Basic information

**Name.** Mehdi Eshagh

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## Employments and appointments

- Scientific Programmer, Swedish Meteorological and Hydrological Institute (SMHI), November 2024-.
- Visiting Professor, **University of West Bohemia**, Czech Republic, September 2023-December 2023.
- Adjunct Professor, Department of Applied Geomatics, **Sherbrooke University**, 18th November 2022-17th November 2025.
- Habilitated at the Department of Geomatics, **University of Sherbrooke**, Canada, January 2022 to December 2025.
- Adjunct Professor of Geodesy, Division of Geodesy and Geodynamics, Ethiopian Space Science and Technology Institute, Addis Ababa University, since June 2019.

## Previous employments

- Professor in Geodesy at **University West**, Sweden, September 2013-23rd March 2023.
- Senior Researcher/associate professor at **Royal Institute of Technology (KTH)**, from November 2010-June 2016.
- Researcher at **Royal Institute of Technology (KTH)**, July 2009 –October 2010.
- Assistant Professor at **KNToosi University of Technology**, Tehran, Iran, February 2011-December 2013
- Assistant Professor at Islamic **Azad University Share-e-Rey branch**, February 2011-December 2013.
- PhD student at **Royal Institute of Technology (KTH)**, September 2006-June 2009.

- Lecturer at Islamic **Azad University Shahr-e-Rey branch**, September 2003-August 2006.
- Lecturer at Islamic **Azad University Larestan branch**, September 2000-August 2006.
- Lecturer at Islamic **Azad University, South of Tehran branch**, September 2003-September 2004.
- Lecturer at Islamic **Azad University, Zarand**, September 2003-December 2004.
- Teacher at DIN VA DANESH technical school (high school level), September 1999-August 2000.
- Teacher at RAJAEI technical school (high school level), December 1999-August 2003.

## Educations and qualifications

- BSc in Surveying Engineering, Islamic Azad University, South of Tehran Branch, 1999.
- MSc in Geodesy, KNToosi University of Technology, Tehran, Iran, 2002.
- PhD in Geodesy, from Royal Institute of Technology (KTH), 2009.
- Docent in Physical Geodesy / Space Geodesy at the Royal Institute of Technology (KTH), 2010.

## List of publications

### Peer-reviewed Journal Papers

1. Eshagh M. (2005) Step-variable numerical orbit determination of a low earth Orbiting Satellite, *J Earth & Space Phys.*, 31(1): 1-12.
2. Eshagh M. and Najafi-Alamdari M. (2006) Comparison of different methods of orbit integration of a low Earth orbiting satellite, *J Earth & Space Phys.*, 32(3): 41-57.
3. Eshagh M. and Najafi-Alamdari M. (2006) The effects of Solid Tide on an elastic and unelastic Earth, *J Earth & Space Phys.*, 32(3):1-9.
4. Eshagh M. and Najafi-Alamdari M. (2007) Perturbations in orbital elements of a low Earth orbiting (LEO) satellite, *J Earth & Space Phys.*, 33(1): 1-12.
5. Eshagh M., Sjöberg L. E. and Kiamehr R. (2007) Evaluation of robust techniques in suppressing the impact of outliers in a deformation monitoring network – A case study on the Tehran Milad tower network, *Acta Geod. Geophys. Hung.*, 42(4): 449-463.
6. Eshagh M. and Kiamehr R. (2007) A strategy for optimum designing of the geodetic networks from the cost, reliability and precision views, *Acta Geod. Geophys. Hung.*, 42(2): 297-308.
7. Eshagh M. and Sjöberg L.E. (2008) Impact of topography and atmosphere over Iran on validation and inversion of GOCE gradiometric data, *J Earth & Space Phys.*, 34(3): 15-30.
8. Eshagh M. and Sjöberg L.E. (2008) The modified best quadratic unbiased non-negative estimator (MBQUNE) of variance components, *Stud. Geophys. Geod.*, 52: 305-320. <https://doi.org/10.1007/s11200-008-0023-1>
9. Eshagh, M. and Sjöberg L.E. (2008) Interpretation of the general geophysical patterns of Iran based on the gradient components analysis of the GRACE, *Acta Geophys.*, 56(2): 440-454.
10. Kiamehr R. and Eshagh M. (2008) Estimation of variance components Ellipsoidal, Geoidal and orthometrical heights, *J Earth & Space Phys.*, 34(3):1-13.

11. Eshagh M. (2008) Non-singular expressions for vector and gradient tensor of gravitation in a geocentric spherical frame, *Computers & Geosciences*, 32: 1762-1768.
12. Kiamehr R. and Eshagh M. (2008) EGMlab, a scientific software for determining the gravity and gradient components from global geopotential models, *Earth Sci. Inf.*, 1: 93-103. [Link](#)
13. Bagherbandi M., Eshagh M. and Sjöberg L.E. (2009) Multi-objective versus single-objective models in geodetic network optimization, *Nordic J Surv. Real Stat.*, 6(1):7-20.
14. Eshagh M. and Sjöberg L. E. (2009) Atmospheric effects on satellite gravity gradiometry data, *J Geodyn.*, 47:9-19. <https://doi.org/10.1016/j.jog.2008.06.001>
15. Eshagh M. (2009) Impact of vectorization in global synthesis and analysis in gradiometry, *Acta Geod. Geophys. Hung.*, 44(3):1-20.
16. Eshagh M. and Sjöberg L.E. (2009) Topographic and atmospheric effects on GOCE gradiometric data in local north oriented frame: A case study in Fennoscandia and Iran, *Stud. Geophys. Geod.*, 53: 61-80. <https://doi.org/10.1007/s11200-009-0004-z>
17. Eshagh M. (2009) Orbit integration in non-inertial frame, *J Earth & Space Phys.*, 35(1):1-8.
18. Eshagh M. (2009) Spherical harmonic expansion of the atmospheric gravitational potential based on exponential and power models of atmosphere, *Artif. Satell.*, 43(1):26-43.
19. Eshagh M., Abdollahzadeh M. and Najafi-Alamdari M. (2009) Simplification of geopotential perturbing force acting on a satellite, *Artif. Satell.*, 43(2):45-64.
20. Sjöberg L.E. and Eshagh M. (2009) A geoid solution for airborne gravity data, *Stud. Geophys. Geod.*, 53:359-374.
21. Eshagh M. and Abdollahzadeh M. (2009) The effect of geopotential perturbations of GOCE on its observations: A numerical study, *Acta Geod. Geophys. Hung.*, 44(4):385-398.
22. Eshagh M. (2009) The effect of lateral density variation of crustal and topographic masses on GOCE gradiometric data: A study in Iran and Fennoscandia, *Acta Geod. Geophys. Hung.*, 44(4): 399-418.
23. Eshagh M. (2009) The effect of polar gaps on the solutions of gradiometric boundary value problems, *Artif. Satell.*, 43(3):97-108.
24. Eshagh M. (2009) Contribution of 1st-3rd order terms of a binomial expansion of topographic heights in topographic and atmospheric effects on satellite gravity gradiometric data, *Artificial Artif. Satell.*, 44(1):21-31. [link](#)
25. Eshagh M. (2009) Alternative expressions for gravity gradients in local north-oriented frame and tensor spherical harmonics, *Acta Geophys.*, 58:215-243.
26. Eshagh M. (2009) Least-squares modification of Stokes' formula with EGM08, *Geod. & Cart.*, 35(4):111-117. <https://doi.org/10.3846/1392-1541.2009.35.111-117>
27. Eshagh M. (2009) On the convergence of spherical harmonic expansion of topographic and atmospheric biases in gradiometry, *Contr. Geophys. Geod.*, 39(4):273-299.
28. Sjöberg L.E. and Eshagh M. (2010) Considering data gaps in geoid modelling by modifying Stokes' formula, *Acta Geod. Geophys. Hung.*, 45:165-183.
29. Eshagh M. (2010) Variance component estimation in linear ill-posed problems: TSVD issue, *Acta Geod. Geophys. Hung.*, 45:184-194.
30. Eshagh M. (2010) Comparison of two approaches for considering laterally varying density in topographic effect on satellite gravity gradiometric data, *Acta Geophys.*, 58(4):661-686.
31. Eshagh M. (2010) Least-squares modification of extended Stokes' formula and its second-order radial derivative for validation of satellite gravity gradiometry data, *J Geodyn.*, 49:92-104.
32. Eshagh M. (2010) Optimal combination of integral solutions of gradiometric boundary value problem using variance component estimation in the Earth gravitational modelling, *EPS*, 62:1-12.
33. Eshagh M. (2010) Inversion of gravity gradients for determination of gravity anomaly in the polar gaps, *Acta Geod. Geophys. Hung.*, 45(4):440-451.
34. Eshagh M. (2010) Error calibration of quasi-geoid, normal and ellipsoidal heights of Sweden using variance component estimation, *Contr. Geophys. Geod.*, 40(1):1-30. <https://doi.org/10.2478/v10126-010-0001-9>
35. Eshagh M. (2010) Spatially restricted integrals in gradiometric boundary value problems, *Artif. Satell.*, 44(4):131-148. [link](#)

36. Eshagh M. (2010) Towards validation of satellite gradiometric data using modified version of 2nd order partial derivatives of extended Stokes' formula, *Artif. Satell.*, 44(4):103-129. [link](#)
37. Eshagh M. and Abdollahzadeh M. (2010) Semi-vectorization: an efficient technique for synthesis and analysis of gravity gradiometry data, *Earth Sci. Inf.*, 3:149-158.
38. Eshagh M. (2011) On integral approach to regional gravity field modelling from satellite gradiometric data, *Acta Geophys.*, 59(1):29-54.
39. Eshagh M. (2011) Inversion of satellite gradiometry data using statistically modified integral formulas for local gravity field recovery, *Adv. Space Res.*, 47(1):74-85.
40. Eshagh M., Bagherbandi M. and Sjöberg L.E. (2011) A combined global Moho model based on seismic and gravimetric data, *Acta Geod. Geophys. Hung.*, 46:25-38.
41. Eshagh M. (2011) Semi-stochastic modification of second-order radial derivative of Abel-Poisson integral for validating satellite gradiometric data, *Adv. Space Res.*, 47:757-767.
42. Eshagh M. and Sjöberg L. E. (2011) Determination of gravity anomaly at sea level from inversion of satellite gravity gradiometric data, *J Geodyn.*, 51:366-377. [Link](#)
43. Eshagh M. (2011) Sequential Tikhonov Regularization: an alternative way for inverting satellite gradiometric data, *ZfV.*, 136:113-121. [Download](#)
44. Eshagh M. (2011) The effect of spatial truncation error on integral inversion of satellite gravity gradiometry data, *Adv. Space Res.*, 47:1238-1247.
45. Eshagh M. (2011) On the estimation of variance in unstable condition adjustment models, *Acta Geod. Geophys. Hung.*, 46:71-83. [Download](#)
46. Eshagh M. (2011) Spectral combination of vector gravimetric boundary value problems, *Eng. J Geospatial Inf. Sys.*(in Persian), 1(3):33-50.
47. Eshagh M. and Bagherbandi M. (2011) Smoothing impact of isostatic crustal thickness models on local integral inversion of satellite gravity gradiometry data, *Acta Geophys.*, 59(5):891-906. <https://doi.org/10.2478/s11600-011-0017-1>
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51. Bagherbandi M. and Eshagh M. (2012) Recovery of Moho's undulations based on the Vening Meinesz-Moritz theory from satellite gravity gradiometry data: A simulation study, *Adv. Space Res.*, 49(6):1097-1111.
52. Eshagh M. and Bagherbandi M. (2012) Quality description for gravimetric and seismic Moho models of Fennoscandia through a combined adjustment, *Acta Geod. Geophys. Hung.*, 47(4): 388-401.
53. Eshagh M. (2012) Spectral combination of spherical gradiometric boundary-value problems: a theoretical study, *Pure Appl. Geophys.*, 169: 2201-2215.
54. Bagherbandi M. and Eshagh M. (2012) Crustal thickness recovery using an isostatic model and GOCE data, *EPS*, 64(11): 1053-1057.
55. Eshagh M. (2012) A strategy towards an EGM08-based Fennoscandian geoid model, *J Appl. Geophys.* 87: 53-59.
56. Eshagh M., Lemoine J.M., Gegout P. and Biancale R. (2013) On regularized time varying gravity field models based on GRACE data and their comparisons with hydrological models, *Acta Geophys.* 61(1): 1-17. [Link](#)
57. Novak P., Tenzer R., Eshagh M. and Bagherbandi M. (2013) Evaluation of gravity gradients generated by Earth crustal structure, *Comp. Geosci.* 51:22-33.
58. Eshagh M. and Romeshkani M. (2013) Quality assessment of terrestrial gravity anomalies from GOCE gradiometric data and Earth's gravity models using variance component estimation, *Stud. Geophys. Geod.* 57(1):67-83.
59. Eshagh M. and Ghorbannia M. (2013) The use of Gaussian equations of motions of a satellite for local gravity anomaly recovery, *Adv. Space Res.* 52(1):30-38.

60. Eshagh M. (2013) On the reliability and error calibration of some recent Earth's gravity models of GOCE with respect to EGM08, *Acta Geod. Geophys. Hung.*, 48(2): 199-208.
61. Eshagh M. (2013) An integral approach to regional gravity field refinement using Earth gravity models, *J Geodyn.* 68: 18-28.
62. Eshagh M. and Ebadi S. (2013) Geoid modelling based on EGM08 and the recent Earth gravity models of GOCE, *Earth Sci. Inf.* 6:113-125.
63. Eshagh M. (2013) Numerical aspects of EGM08-based geoid computations in Fennoscandia regarding the applied reference Surface and error propagation, *J Appl. Geophys.*, 96: 28-32.
64. Eshagh M. (2014) A theoretical study on terrestrial gravimetric data refinement by Earth gravity models, *Geophys. Prosp.* 62: 158-171.
65. Nozari M. and Eshagh M. (2014) An alternative approach to Eulerian Pole determination and unification of velocity fields of tectonic motions, *Tectonophys.* 617:79-87.
66. Eshagh M. (2014) Determination of Moho discontinuity from satellite gradiometry data: linear approach, *GRIB.* 1(2):1-13.
67. Eshagh M. and Ebadi S. (2014) A strategy to calibrate errors of Earth gravity models, *J Appl. Geophys.* 103:215-220.
68. Eshagh M. and Bagherbandi M. (2014) Combined Moho estimators, *GRIB*, 1(3): 1-11.
69. Eshagh M. (2014) From tensor to vector of gravitation, *Artif. Satell.* 49 (2): 63-80.
70. Eshagh M. and Ghorbannia M. (2014) The effect of the spatial truncation error on the variance of gravity anomalies derived from inversion of satellite orbital and gradiometric data, *Adv. Space Res.* 54(2): 261-271.
71. Eshagh M. (2014) From satellite gradiometry data to the sub-crustal stress due to the mantle convection, *Pure Appl. Geophys.*, 171, 2391-2406.
72. Eshagh M. (2014) Integral development of Vening Meinesz-Moritz formula for local determination of Moho discontinuity with applications in Iran, *GRIB*, 2(3): I-IX.
73. Eshagh M. and Alizadeh K. M. A (2015) The effect of constraints on bi-objective optimization of geodetic networks, *Acta Geod. Geophys.*, 50, 449–459. <https://doi.org/10.1007/s40328-014-0085-1>
74. Eshagh M. (2015) On the relation between Moho and sub-crustal stress induced by mantle convection, *J Geophys. Eng.* 12,1-11.
75. Eshagh M. and Tenzer R. (2015) Sub-crustal stress determined using gravity and crust structure models, *Computational Geoscience*, 19, 115-125.
76. Tenzer R. and Eshagh M (2015) Subduction generated sub-crustal stress in Taiwan. *Terr. Atm. Oceanic Sci.* 26, 3, 261-268.
77. Romeshkani M. and Eshagh M. (2015) Deterministically-modified integral estimators of tensor of gravitation, *Boletim de Ciências Geodésicas*, 21, 1, 189-212.
78. Alizadeh-Khameneh, MA, Eshagh M. and Sjöberg L.E. (2015) Optimisation of Lilla Edet Landslide GPS Monitoring Network, *Journal of Geodetic Science*, 5:57-66. <https://doi.org/10.1515/jogs-2015-0005>
79. Eshagh M. and Alizadeh-Khameneh M.A (2015) Two-epoch optimal design of displacement monitoring networks, *Boletim de Ciências Geodésicas*, 21,3, 484-497. <https://doi.org/10.1590/S1982-21702015000300027>
80. Tenzer R., Eshagh M. and Jin S. (2015) Martian sub-crustal stress from gravity and topographic models, *Earth and Planetary Science Letters*, 425:84-92.
81. Eshagh M. and Romeshkani M. (2015) Determination of sub-lithospheric stress due to mantle convection using GOCE gradiometric data over Iran, *J Appl. Geophysics*, 122: 11-17.
82. Eshagh M. and Hussain M. (2015) Relationship amongst gravity gradients, deflection of vertical, Moho deflection and the stresses derived by mantle convections-a case study over Indo-Pak and surroundings, *Geodynamics, Research International Bulletin*, 3 (4): I-XIII.
83. Alizadeh-Khameneh, M. A., Eshagh M. and Sjöberg L.E. (2016) The effect of instrumental precision on optimisation of displacement monitoring networks, *Acta Geodacitica et Geophysica*, 51:761–772. <https://doi.org/10.1007/s40328-015-0150-4>
84. Sprlak M. and Eshagh M. (2016) Local recovery of sub-crustal stress determination from satellite-to-satellite tracking data, *Acta Geophysica*, 64(4): 904-929.

85. Eshagh M. (2016) Integral approaches to determine sub-crustal stress from terrestrial gravimetric data, *Pure and Applied Geophysics*, 173, 805–825.
86. Eshagh M. and Sprlak M. (2016) On the integral inversion of satellite-to-satellite velocity differences for local gravity field recovery: A theoretical study, *Celestial Mechanics and Dynamical astronomy*, 124:127–144.
87. Eshagh M., Hussain M., Tenzer R. and Romeshkani M. (2016) Moho density contrast in central Eurasia from GOCE gravity gradients, *Remote Sensing*, 8(418):1-18..
88. Eshagh M. and Zoghi S. (2016) Local error calibration of EGM08 geoid using GNSS/levelling data, *Journal of Applied Geophysics* 130:209-217. <https://doi.org/10.1016/j.jappgeo.2016.05.002>
89. Eshagh M. and Hussain M. (2016) An approach to Moho discontinuity recovery from on-orbit GOCE data with application over Indo-Pak region, *Tectonophysics* 690,B, 253-262.
90. Hussain M., Eshagh M., Zulfiqar A., Sadiq M. and Fatolazadeh F. (2016) Changes in gravitational parameters inferred from time-variable GRACE-data-A case study for October 2005 Kashmir Earthquake, *Journal of Applied Geophysics* 132:174-183.
91. Eshagh M., Hussain M. and Tiampo K.F (2016) Towards sub-lithospheric stress determination from seismic Moho, topographic heights and GOCE data, *Journal of Asian Earth Sciences*, 169(1):1-12. <https://doi.org/10.1016/j.jseae.2016.07.024>
92. Eshagh M. (2016) A theoretical discussion on Vening Meinesz-Moritz inverse problem of isostasy, *Geophysical Journal International*, 207, 1420-1431.
93. Eshagh M. (2016) On Vening Meinesz-Moritz and flexural theories of isostasy and their comparison over Tibet Plateau, *Journal of Geodetic Science*, 6: 139-151.
94. Tenzer R., Eshagh M. and Shen W. (2017) The subcrustal stress estimation in central Eurasia from gravity, terrain and crustal structure models, *Geoscience Journal* 21(1):47-54.
95. Eshagh M. (2017) Local recovery of lithospheric stress tensor from GOCE gravitational tensor, *Geophysical Journal International*, 209, 317–333.
96. Eshagh M., Ebadi S. and Tenzer R. (2017) Isostatic GOCE Moho model for Iran, *Journal of Asian Earth Sciences*, 138:12-24.
97. Eshagh M. and Tenzer R. (2017) Lithospheric stress tensor from gravity and lithospheric structure models, *Pure and Applied Geophysics*, 174, 2677–2688 .
98. Eshagh M. (2017) On the approximations in formulation of the Vening Meinesz-Moritz inverse problem of isostasy, *Geophysical Journal International*, 210, 500–508.
99. Eshagh M. (2018) Elastic thickness determination based on Vening Meinesz-Moritz and flexural theories of isostasy, *Geophysical Journal International*, 213, 3, 1682-1692.
100. Eshagh M., Steinberger B., Tenzer R. and Tassara A. (2018) Comparison of gravimetric and mantle flow solutions for lithospheric stress modelling and their combination, *Geophysical Journal International*, 213, 2, 1013–1028.
101. Eshagh M., Johansson F., Karlsson L. and Horemuz M. (2018) A case study on displacement analysis of Vasa warship, *Journal of geodetic Science* 8:43–54. <https://doi.org/10.1515/jogs-2018-0006>
102. Eshagh M., Ashagrie A. and Bedada T. B. (2018) Regional recovery of gravity anomaly from the inversion of diagonal components of GOCE gravitational tensor: A Case Study in Ethiopia, *Artificial Satellites* 53,2, 55-74. ,
103. Zampal L., Tenzer R., Eshagh M. and Pitonak M. (2018) Evidence of mantle upwelling/downwelling and localised subduction on Venus from the body-force vector analysis, *Planetary and Space Science*, 157, 48-62.
104. Alizadeh-Khameneh M.A., Eshagh M., Jensen A.O. (2018) Optimization of deformation monitoring networks using finite element strain analysis, *Journal of Applied Geodesy*, 12, 2, 187–197. <https://doi.org/10.1515/jag-2017-0040>
105. Seif M. R., Sharifi M. A. and Eshagh M. (2018) Polynomial approximation for fast generation of Associated Legendre functions, *Acta Geodetica et Geophysica Hungarica*, 53:275–293.
106. Pitoňák M., Eshagh M., Sprlak M., Tenzer R. and Novak P. (2018) Spectral combination of spherical gravitational curvature boundary-value problems, *Geophysical Journal International* 214, 773–791.
107. Eshagh M., Pitonak M. and Tenzer R. (2019) Lithospheric elastic thickness estimates in central Eurasia, *Terrestrial, Atmospheric and Oceanic Sciences*, 30(1): 73-84.

108. Eshagh M. and Pitonak M. (2019) Elastic thickness determination from on-orbit GOCE data and CRUST1.0, *Pure and Applied Geophysics*, 176, 685-696.
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110. Eshagh M., Tenzer R. and Eshagh M. (2019) Elastic thickness of the Iranian lithosphere from gravity and seismic data, *Tectonophysics*, [774](https://doi.org/10.1016/j.tecto.2019.07.014), 228186.
111. Eshagh M. and Berntsson J. (2019) On quality of NKG2015 geoid model over the Nordic countries, *Journal of Geodetic Science*, 9, 97-110. <https://doi.org/10.1515/jogs-2019-0010>
112. Ashagrie Gedamu A., Eshagh M. and Bedada T B (2020) Moho Determination from GOCE Gradiometry Data over Ethiopia, *Journal of African Earth Science*, [163](https://doi.org/10.1016/j.jaes.2020.103741), 103741.
113. Fatolazadeh F., Eshagh M., Goita K. (2020) A new approach for generating optimal GLDAS hydrological products and uncertainties, *Science of the Total Environment*, 730, 138932.
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117. Ashagrie A., Eshagh M. and Bedada T.B. (2021) Effects of Mantle Dynamics on Estimating Effective Elastic Thickness of the Lithosphere, *Journal of African Earth Sciences*, 183, 104318.
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121. Eshagh M. (2022) Optimisation of basepoints' configuration in localisation of signal interference device, *Journal of Surveying Engineering*, 149(1): 04022019. DOI:10.1061/(ASCE)SU.1943-5428.0000416.
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123. Eshagh M. (2022) An optimal design of GNSS interference localisation wireless security network based on time-difference of arrival for the Arlanda international airport, *Journal of Geodetic Science*, 12, 154-164. <https://doi.org/10.1515/jogs-2022-0142>
124. Fatolazadeh F., Eshagh M., Goita K. and Wang S. (2022) A new spatio-temporal estimator for downscaling GRACE gravity models for terrestrial and groundwater storage variation estimation, *Remote Sensing*,14,5991.<https://doi.org/10.3390/rs14235991>
125. Gedamu A. A., Eshagh M. and Bedada T.B. (2023) Lithospheric stress due to mantle convection and mantle plume over East Africa using GOCE and seismic data, *Remote Sensing*, 15, 462. <https://doi.org/10.3390/rs15020462>
126. Eshagh M. (2023) Optimal configuration for monitoring stations in a wireless localisation network based on received signal strength differences, *Sensors*, 23, 1150. <https://doi.org/10.3390/s23031150>
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128. Habte A. N. and Eshagh M. (2024) Combination of PSInSAR and GPS to estimate three-dimensional crustal displacements over the Afar region, *Journal of African Earth Sciences*, 209, 105119. <https://doi.org/10.1016/j.jafrearsci.2023.105119>
129. Habte A. N. and Eshagh M. (2024) Combination of PSInSAR and GNSS to estimate stress and strain tensor over the Afar region, *Journal of Geodetic Science* (accepted)

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131. Novak P., Eshagh M., and Pitonak M. (2024) Uncertainties associated with integral-based solutions to geodetic boundary-value problems, Journal of Geodesy, 98, 54, <https://doi.org/10.1007/s00190-024-01858-x>.

## Books

1. **Eshagh M. (2020)** Satellite Gravimetry and the Solid Earth, Mathematical Foundations Elsevier
2. **Eshagh M.** (2002) Basis and principles of geometrical geodesy, Parastooyeh Mohajer publishing company (in Persian).
3. **Eshagh M.** and Sjöberg L.E. (2009) Satellite Gravity Gradiometry: An approach to high resolution gravity field modelling from space, VDM Verlag, 244 p., ISBN-13: 978-3639203509. (In English).

## Edited Proceedings

1. Sundararajan, N., **Eshagh, M.**, Saibi, H., Mustapha, M., Al-Garni, M., Giroux, B. (Eds.) (2018) On significant application of geophysical methods, Springer, Berlin.
2. Meghraoui M., Sundarajan N., Banerjee S., Hinzen K.G., **Eshagh M.**, Roure F., Chaminé H.I., Maouche S., Michard A. and Alamri A. (2021) Advances in Geophysics, Tectonics and Petroleum Geosciences - Proceedings of the 2nd Springer Conference of the Arabian Journal of Geosciences (CAJG-2), Tunisia 2019, Springer Nature.
3. Erguler Z.A., Hadji R., Chamine H.I., Rodrigo-Comino J., Kallel A., Merkel B., **Eshagh M.**, Chenchouni H., Grab S., Karakus M., Khomsi S., Knight S., Bezzeghoud M., Berbeiri M., Panda S., Benim A. C. and El-Askary H. (2023) Selected Studies in Geotechnics, Geo-Informatics and Remote Sensing - Proceedings of the 3rd Conference of the Arabian Journal of Geosciences (CAJG-3), Sousse, Tunisia on November 2–5, Springer nature, 2020.
4. Kallel A., Barbieri M., Rodrigo-Comino J., Chaminé H. I., Merkel B., Chenchouni H., Knight J., Panda S., Khélifi N., Benim A. C., Grab S., El-Askary H., Banerjee S., Hadji R., **Eshagh M.** (2023) Selected Studies in Environmental Geosciences and Hydrogeosciences, Proceedings of the 3rd Conference of the Arabian Journal of Geosciences (CAJG-3) Sousse, Tunisia on November 2–5, 2020, Springer nature, [link](#).
5. Ciner A., Erguller Z.A., Bezzeghoud M., Ustuner M., **Eshagh M.**, El-Askary, Biswas A., Gasperini L., Hinzen K. G., Karasus M., Karrech A., Polonia A., and Chamine H. I. (2023) Recent Research on Geotechnical Engineering, Remote Sensing, Geophysics and Earthquake Seismology - Proceedings of the 1st MedGU, Istanbul 2021 (Volume 3), Springer nature, [link](#)
6. Khomsi S., Bezzeghoud M., Banerjee S., **Eshagh M.**, Benim A.C., Merkel B., Kallel A., Panda S., Chenchouni H., Grab S. and Barbieri M. (2023) Selected Studies in Geophysics, Tectonics and Petroleum Geosciences, Proceedings of the 3rd Conference of the Arabian Journal of Geosciences (CAJG-3) Sousse, Tunisia on November 2–5, 2020, Springer nature, [link](#).



## Edited Special Issues

1. Eshagh M (2014) NKG2014 General Assembly, Journal of Geodetic Science, de Gruyter
2. Eshagh M., Pail R., Barzaghi R., Tsoulis D. and Jin S. (2022) The Earth's Gravity Field: Recent Methodologies and Applications, Frontiers in Earth Sciences, Frontiers
3. Eshagh M., Braitenberg C. and Reguzonni M. (2023) Geophysical Applications of GOCE measurements, Remote Sensing, MDPI

## Book Chapters

1. Tenzer R. and Eshagh M. (2016) Global sub-crustal Stress field, *In: Geostatistical and Geospatial Approaches for the Characterization of Natural Resources in the Environment* / [ed] Raju, N. Janardhana, Springer International Publishing , 2016, p. 461-465
2. Eshagh M. (2021) The Earth's gravity field and its role in Geodesy and large-scale Geophysics, Geodetic Sciences, Theory, Applications and recent developments, Book Chapter In "Geodetic Sciences - Theory, Applications and Recent Developments," 978-1-83962-767-5, v. Eds, Erol B, and Erol S.

## Book reviews

1. Eshagh M. (2022) Analysis of the gravity field, direct and inverse problems, by Fernando Sanso and Daniele Sampietro published by Birkhäuser 2022, Journal of Geodetic Science, vol. 12, no. 1, 2022, pp. 244-245. <https://doi.org/10.1515/jogs-2022-0149>
2. Eshagh M. (2023) Physical Geodesy, by Martin Vermeer, published by Aalto University Press 2020, Journal of Geodetic Science, vol. 13, no. 1, 2023, pp. 20220150. <https://doi.org/10.1515/jogs-2022-0150>

## National reports

1. Norin D., Mårtensson S.G., **Eshagh M.** (2014) National report of Sweden to the NKG general assembly 2014-geodetic activities in Sweden 2010-2014.
2. Norin D., Jensen A.B.O., Bagherbandi M. and **Eshagh M.** (2018) Geodetic Activities in Sweden 2014-2018, Reports in Geodesy and Geographic Information System, Lantmäterirapprt 2018:4.
3. Stefen H., Bagherbandi M., **Eshagh M.**, Horemuz M. and Johansson J. (2022) Geodetic activities in Sweden 2018-2022, Geodetic Report, Lantmäterirapport 2203.

## Granted research projects

1. Deformation network design of man-made constructions, Project funded by FORMAS, 2013-2014.

2. Ethiopian-Sweden International mobility project, granted by Erasmus+, European Commission.
3. Study of the deep magmatic plumbing systems using new geodetic and geophysical approaches, granted by the Ministry of Science, innovation and universities of Spain, 2019-2021.
4. New geodetic and geophysical approaches for the study of hot spots, (G2HOTSPOTS) (PID2021-122142OB-I00), granted by the Ministry of Science, innovation and universities of Spain, 2022-2026.

Funds from trade and industry as well as authorities.

5. Geoid determination by GOCE, project No. 63/07:1 funded by the Swedish National Space Board (SNSB), 2006-2009.
6. Towards a precise geoid for Fennoscandia using GOCE and EGM08, Project No: 98/09:1 funded by the SNSB, 2010 and 2011.
7. Fennoscandian studies of local gravity field modelling using GOCE, the research project No. 82/11 funded by the SNSB, 2012.
8. Deformation Monitoring over Västra Götaland using InSAR data of Sentinel-1 satellite mission, J Gustaf Richters stiftelse, SWECO, 2018-2019
9. Abrehdary M., Eshagh M. and Sjöberg L.E. (2019-2020) On using satellite altimetry to determine the crust-mantle density contrast on the oceans, Swedish National Space Agency (SNSA), 2019-2020.
10. Precise gravimetric Geoid determination of IRAN using the Stokes-Helmert scheme, the project funded by the NCC of Iran, 2003.
11. Variance-Components Estimation and Outlier Detection in Geodetic Networks, project No. 17/8270-83/11/6 granted by the Islamic Azad University, Shahr-e-Rey Branch, Tehran, Iran. 2004.
12. Design and Optimization of Geodetic Networks, project No. 22/9341-84/8/18 granted by the Islamic Azad University, Shahr-e-Rey Branch, Tehran, Iran, 2005. Internal project grant from Islamic Azad University, Shahr-e-Rey Branch, I was the only investigator.
13. Terrestrial gravity data refinement using the recent Earth's gravity models, Project No. 1728 granted by the Islamic Azad University, Shahr-e-Rey Branch, Tehran, Iran, 2012.

## Conference activities

### Conference presentations

1. **Eshagh M.** and Tenzer R. (2014) Sub-crustal stress induced by mantle convection from gravity data. International Gravity Field Service General Assembly (IGFS2014), 1-6 July, 2014, Shanghai, China.
2. Gu X., Tenzer R., **Eshagh M.** and Hwang Ch (2014) Crustal stress in Taiwan. International Gravity Field Service General Assembly (IGFS2014), 1-6 July, 2014, Shanghai, China.
3. Tenzer R. and **Eshagh M.** (2014) Stress field along continent-to-continent collision zones. The 5th International workshop on multi-observations and interpretations of Tibet, Xinjiang and Siberia (TibXS), 10-15 August, 2014, Guiyang, China (oral presentation).
5. **Eshagh M.** (2014) On the relation between Moho and sub-crustal stress induced by mantle convection, Poster presentation at the NKG General Assembly 2014 or at the NKG/NNF/RNN joint seminar, 1-4-September, Gothenburg, Sweden.
6. **Eshagh M.** and Alizadeh K. M.A. (2014) Two-epoch optimal design of displacement monitoring networks, Poster presentation at the NKG General Assembly 2014 or at the NKG/NNF/RNN joint seminar, 1-4-September, Gothenburg, Sweden.
7. Alizadeh K. M.A. and **Eshagh M.** (2014) Optimization of Lilla Edet Land Slide GPS Monitoring Network, Poster presentation at the NKG General Assembly 2014 or at the NKG/NNF/RNN joint seminar, 1-4-September, Gothenburg, Sweden.

8. **Eshagh M.** and Romeshkani M. (2014) Determination of sub-crustal stress due to mantle convection using GOCE gradiometric data, Poster presented in 5th GOCE users workshop, 25-28th November, UNESCO, Paris.
9. Fernandez J., Tiampo K.F., Rundle J.B. and **Eshagh M.** (2014) Geodynamical studies using integrated gravity studies, AGU Fall Meeting, San Francisco, USA, 16 December 2014.
10. Tenzer R. and **Eshagh M.** (2015) Gravity recovery of lithospheric structure and stress field of planetary bodies - examples for Earth and Mars. International Workshop on Geodetic and Geophysical Observations for understanding Earth's structure and Processes, 9 February, 2015, Slovak Technical University, Bratislava, Slovak Republic.
11. Tenzer R. and **Eshagh M.** (2015) Global sub-crustal stress field from gravity data. Second SGG International Workshop on Geodetic and Geophysical Observations, Applications and Implications, 19-20 January, 2015, Wuhan University, Wuhan, China.
12. **Eshagh M.** (2015) On the Swedish and Iranian Academic systems, invited speech by Iranian embassy in Stockholm, 25th January 2015, Stockholm, Sweden.
13. Tenzer R. and **Eshagh M.** (2015) Evidence of active regional tectonism on Mars from gravity and topographic data, International Workshop on Earth and Planetary Data Applications and Interpretations, 15 May, 2015, School of Geodesy and Geomatics, Wuhan University, Wuhan, China.
14. Tenzer R, **Eshagh M** (2015) Gravity recovery of lithospheric structure and stress field of planetary bodies - examples for Earth and Mars. International Workshop on Geodetic and Geophysical Observations for understanding Earth's structure and Processes, 9 February, 2015, Slovak Technical University, Bratislava, Slovak Republic.
15. **Eshagh M.** (2015) Determination of crust-mantle density contrast by combination of seismic and satellite gradiometry data, 26th IUGG General assembly, 22th June to 2nd July, Prague Conference Centre, Czech Republic.
16. **Eshagh M.** and Tenzer R. (2015) Sub-crustal stress determined using gravity and crust structure models, 26th IUGG General assembly, 22th June to 2nd July, Prague Conference Centre, Czech Republic.
17. **Eshagh M.** and Hussain M. (2016) An approach to Moho discontinuity recovery from on- orbit GOCE data with application over Indo-Pak region, Poster presentation at ESA living planet symposium, 9-13 May, Prague, Czech Republic.
18. Pitonak M., **Eshagh M.**, Šprlak M., Tenzer R. and Novak P. (2017) Spectral combination of spherical gravitational curvature boundary-value problems, EGU2017-3632, Poster Presentation, European Geoscience Union General Assembly 2017, 23-28 April Vienna, Austria.
19. Pitoňák M, **Eshagh M**, Šprlák M, Tenzer R (2017) Spectral Downward Continuation of Gravitational Curvatures and Its Implications for Future Gravity Field Missions. 12th Slovak Geophysical Conference, September 28-29, Comenius University, Bratislava, Slovakia.
20. Pitonak M., **Eshagh M.** Novak P., Šprlak M., and Tenzer R. (2018) Recovery of the gravitational potential at the Earth's surface by spectral combination of first-, second- and third-order radial derivatives of the gravitational potential measured by satellite sensors, X2.448, EGU2018-12995, Poster Presentation, European Geoscience Union General Assembly 2018, 8-13 April Vienna, Austria.
21. Pitonak M., **Eshagh M.** Novak P., Šprlak M., and Tenzer R. (2018) Recovery of surface gravity anomalies by spectral combination of first-, second- and third-order radial derivatives of the gravitational potential measured by satellite sensors, Oral Presentation, IX Hotine- Marussi Symposium 2018, 18-22 June, Rome, Italy.
22. Zampa L., Tenzer R., **Eshagh M.**, Pitonak M. (2018) Origin of Venisuan surface deformations from gravity and topographic models, Oral Presentation, IX Hotine-Marussi Symposium 2018, 18-22 June, Rome, Italy.
23. Pitoňák M, Novák P, Šprlák M, **Eshagh M** (2018) Local Spectral Downward Continuation of the First-, Second- and Third-Order Radial Derivatives of the Gravitational Potential onto Gravity Disturbances on the Earth Surface. Poster presented at the International Association of Geodesy Symposium: Gravity, Geoid and Height Systems, September 17-21, Copenhagen, Denmark.
24. Pitoňák M, **Eshagh M**, Novák P, Šprlák M, Tenzer R (2018) Spectral Downward Continuation of the First-, Second- and Third-Order Radial Derivatives of the Gravitational Potential Measured by Satellite Sensors. IX Hotine-Marussi Symposium, June 18-22, Rome, Italy.
25. Eshagh M. (2019) Work-integrated learning in surveying engineering education, Poster presented in VILÅR conference, 5-6th December 2019, University West, Trollhättan, Sweden.
26. Pitoňák M, **Eshagh M**, Novák P, Šprlák M, Tenzer R (2018) Recovery of the Gravitational Potential at the Earth's Surface by Spectral Combination of First-, Second- and Third-Order Radial Derivatives of the Gravitational Potential Measured by Satellite Sensors. Poster presented at the European Geosciences Union General Assembly, April 8-13, Vienna, Austria.
27. Fatolazadeh F., **Eshagh M.**, and Giota K. (2022) Development of spectral combination theory for spatial downscaling of terrestrial and groundwater storage variations estimated from GRACE models, Hotine-Marussi symposium 2022, Politecnico di Milano, Milano-June 13-17, 2022. watch the video:

<https://youtu.be/7xrrvwxMXwQ>

28. **Eshagh M.** (2022) Optimal design of localisation wireless security networks, oral presentation, Nordic Geodetic Commission General Assembly 2022, 5-8th of September, Copenhagen, Denmark. watch the recorded video: <https://youtu.be/Qj-tGUUCH84>
29. **Eshagh M.**, Fatolazadeh F. and Goita K. (2022) A daily spatiotemporal estimator for downscaling GRACE gravity models for terrestrial water storage and groundwater storage estimation, poster presentation, Nordic Geodetic Commission General Assembly 2022, 5-8th of September, Copenhagen, Denmark. Watch a recorded video: <https://youtu.be/KNuqJkDQfKo>
30. Novak, P., Eshagh, M., and Pitoňák, M. (2024) Uncertainties associated with integral-based transforms of measured potential gradients, EGU General Assembly 2024, Vienna, Austria, 14–19 Apr 2024, EGU24-15596, 2024. [link](#)
31. Fatolazadeh F., Eshagh M., and Goita K. (2020) Spectral combination approach for spatiotemporal downscaling of groundwater storage variation derived by GRACE and GRACE-FO observation, ID 124, the 45th Canadian Symposium on Remote Sensing, June 10-13, Dalhousie University, Halifax, Nova, Scotia, Canada.
32. Novak P., Eshagh M., and Pitoňák, M. (2024) On uncertainties associated with regional gravity field modelling, Abstract ID: 83, GGHS2024, Thessaloniki, 4-6 September, poster.

## General Invited scientific talks

1. Time and coordinate systems in space, Islamic Azad University, Larestan Branch, 2001.
2. Applications of satellite mission GOCE, Islamic Azad University, South of Tehran Branch, 30th of December 2018.
3. Satellite Geodesy and its applications, Samarkand state architectural and civil engineering institute, Uzbekistan. watch the presentation: <https://youtu.be/G2-cQQ2fmIQ>
4. Satellite Geodesy and its applications, Centre d'applications et de recherches en télédétection (Cartel), Université de Sherbrooke, 2nd of June 2023.
5. Space Geodesy, An overview, Ethiopian Space Science and Technology Institute, 19th June 2023, [https://youtu.be/eLJ0feGgJ\\_0](https://youtu.be/eLJ0feGgJ_0)
6. On academic systems of Sweden and Iran, public presentation, at the cultural centre of Iranian Embassy in Stockholm.

## Conference papers

1. Ghorbannia M. and **Eshagh M.** (2014) Evaluation of Gaussian equations of motion of a satellite for local Earth's gravity field recovery over Iran, Geomatics 93 conference, 24th and 25th May 2014, Tehran, Iran (in Persian).
2. Ebadi S. and **Eshagh M.** (2014) A method for calibrating errors of the Earth gravity models, Geomatics 93 conference, 24th and 25th May 2014, Tehran, Iran (in Persian).
3. Ebadi S. and **Eshagh M.** (2014) Investigations into the recent Earth's gravity models of GOCE in comparison with EGM08, Geomatics 93 conference, 24th and 25th May 2014, Tehran, Iran (in Persian).
4. Ebadi S. and **Eshagh M.** (2014) Precise geoid determination based on the recent developments in gravimetric data, Geomatics 93 conference, 24th and 25th May 2014, Tehran, Iran (in Persian).
5. Tenzer R, **Eshagh M.**, Shen W (2014) Distribution of the sub-crustal stress in central Eurasia. In: Jin SG (Ed) 3rd International Gravity Field Service (IGFS) General Assembly in Shanghai, China, IAG Symposia, Springer-Verlag Berlin Heidelberg
6. Pitonak M., **Eshagh M.**, Sprlak M., Tenzer R. and Novak P. (2017) Spectral

combination of spherical curvature boundary-value problems, Geophysical Research Abstracts, Vol. 19, EGU2017-3632, 2017, EGU General Assembly 2017, Vienna, Austria.

7. Pitonak M, **Eshagh M**, Novak P., Sprlak M. and Tenzer R. (2018) Recovery of the gravitational potential at the Earth's surface by spectral combination of first-, second- and third-order radial derivatives of the gravitational potential measured by satellite sensors, Geophysical Research Abstracts Vol. 20, EGU2018-12995, 2018, EGU General Assembly 2018.
8. Pitonák, M., **Eshagh M.**, Sprlak M. and Novák P. (2022) Odhad hrúbky litosféry z vertikálnych gradientov meraných družicou GOCE a modelu CRUST 1.0. In: *Družicové metody v geodézii a katastru 2022* [online]. Vysoké učení technické v Brně, Fakulta stavební, 2022, s. 63-64 [cit. 2023-08-26]. ISBN 978-80-86433-77-6. Dostupné z: doi:10.13164/seminargnss.2022.63

## Chairing sessions

- Session T15-VS1: Structural Geology, Tectonics and Geodynamics, and Petroleum Geology, of MedGU-2022 2nd Mediterranean Geoscience Union annual Meeting, 28th of November, 11:00-12:30 AM.
- Session T3-VS1: Earthquake, Seismology and Geodesy of MedGU-2022 2nd Mediterranean Geoscience Union annual Meeting, 28th of November, 8:30-10:30 AM.
- Geodynamics session, Geomatics 90 conference, at National Cartographic Centre (NCC) of Iran, the 15 of May 2011, Tehran, Iran.
- Mathematical Geodesy session of the second international Conference and Exhibition on Mapping and spatial information (ICMSI 2012) and 19th national Geomatics Conference, organised by the NCC of Iran, 7th-9th of May 2012, University of Shahid Beheshti Tehran, Iran.

## Board of scientific committees

- MedGU-2022 Mediterranean Geoscience Union 2nd Annual Meeting, Marrakech, on 27-30 November 2022.
- MedGU-2021 Mediterranean Geoscience Union 1st Annual Meeting, Istanbul, Turkey on 25-28 November 2021.
- Referee of the 3th National Conference on Geospatial Information Technology 2018, Tehran, Iran.
- 2nd Springer/SSG Conference of the Arabian Journal of Geosciences, 25 – 28 November 2019 in Sousse, Tunisia.
- Track 5 proceedings of 1<sup>st</sup> conference of Arabian Journal of Geoscience, Tunisia, Springer, 2018.
- Geomatic 97 and Geospatial Information Technology, 20 and 21<sup>st</sup> January 2018, National Cartographic Centre (NCC), Teheran, Iran.
- National Conference of Geospatial Information Technology Engineering, 19th January 2017, KNToosi University of Technology, Teheran, Iran.
- National Conference of Geospatial Information Technology Engineering, 19-20th January 2016, KNToosi University of Technology, Teheran, Iran.
- The second international Conference and Exhibition on Mapping and spatial information (ICMSI 2012) and 19th national Geomatics Conference, organised by

the NCC of Iran, 7th-9th of May 2012, University of Shahid Beheshti Tehran, Iran.

## Proceedings editor

- MedGU-2021 Mediterranean Geoscience Union 1st Annual Meeting, Istanbul, Turkey on 25-28 November 2021.
- MedGU-2022, Mediterranean Geoscience Union 2nd Annual Meeting, Marrakech, on 27-30 November 2022.
- 2nd Springer/SSG Conference of the Arabian Journal of Geosciences, 25 – 28th November 2019 in Sousse, Tunisia.
- Nordic Geodetic Commission 2014 Special issue of Journal of Geodetic Science, de Gruyter Open.
- Track 5 proceedings of 1<sup>st</sup> conference of Arabian Journal of Geoscience, Tunisia, Springer, 2018.

## Others

- *Arranging a special issue in Journal of Geodetic Science for International Symposium Gravity, Geoid and Height Systems 2* “GRAVITY FIELD OF THE EARTH”, in Copenhagen, Denmark, 2018.
- Referee of the 3th National Conference on Geospatial Information Technology 2018, Tehran, Iran.

## National and international awards/nominations

- Teaching sabbatical, 2014 from the Swedish Foundation for international cooperation in research and higher education (STINT) for teaching at the Ohio State University.
- Nominated for the Bomford prize by the Swedish National Committee on Geophysics, 2010.
- Nominated for James B Macelwane Medal, AGU, 2012, by Lars E. Sjöberg and support of Carl Christian Tscherning, Christopher Jekeli and Klas-Göran Persson

## Membership in academies/committees, etc.

- Study Group JSG T.23: [Spherical and spheroidal integral formulas of the potential theory for transforming classical and new gravitational observables](#), Chair: Michal Šprlák (Czech Republic), Affiliation: Commission 2 and GGOS, International Association of Geodesy
- Member of evaluation committee of Quaid-i-Azam University, Islamabad, Pakistan.
- Examination Committee at University of Trieste, Italy, in March 2019.
- Examination Committee at Sherbrooke University, Quebec, Canada, November

2022.

## Assignments as reviewer /independent expert

### Editorial/advisory board in international journals.

- **Editor-in-chief** of Journal of geodetic science since July 2018.
- Main Editor / **Managing editor** of Journal of Geodetic Science 2010-April 2014
- Senior Managing Editor of the Journal of Geodetic Science, from May 2014 to June 2018.
- Editor of the quarterly journal Numerical Methods in Civil Engineering
- Editor of Geodynamics Research International Bulletin
- Editor of Journal of Applied Engineering Sciences
- Editor of Journal of Geodesy and Geomatics Engineering
- Associate Editor of Arabian Journal of Geosciences

### Review Assignment for peer-review journals

Number of reviewer papers is in front of the journal title

- Acta Geophysica (7)
- Acta Geodaetica et Geophysica Hungarica (10)
- Acta Astronautica (2)
- Advances in Space Research (6)
- Advances in Geodesy and Geoinformation (1)
- Arabian Journal of Geosciences (3)
- Artificial Satellites (3)
- Applied Sciences (2)
- Bulletin of Geodetic Science (1)
- Contributions to Geophysics and Geodesy (2)
- Computers and Geosciences (3)
- Journal of Geodesy (20)
- Journal of Applied Geodesy (1)
- Journal of Marine Sciences and Engineering (1)
- Journal of Surveying Engineering (9)
- Journal of selected topics in applied Earth observations and remote sensing (1)
- Pure and Applied Geophysics (5)
- Journal of Geodetic Science (13)
- Journal of Mountain Science (1)
- Journal of Geomatics Science and Technology (4)
- Journal of African Earth Sciences (1)
- Journal of Asian Earth Sciences (1)
- Journal of Geophysical Research, Solid Earth (2)
- Terrestrial, Atmospheric & Oceanic Sciences (1)
- Computational Geosciences (1)
- Remote Sensing (8)

- Geophysics (3)
- Geodesy and Geodynamics (1)
- Geophysical Journal International (13)
- Geophysical Prospecting (1)
- Geoscience Journal (1)
- Heliyon (1)
- Inverse Problems in Science & Engineering (1)
- Journal of Applied Engineering Science (1)
- Journal of Applied Geophysics (1)
- Journal Geodesy and Geomatics Engineering (1)
- Journal of Geophysics and Engineering (1)
- Geodynamics Research International Bulletin (2)
- Marine Geodesy (3)
- Earth Sciences Research Journal (1)
- Earth and Space Science (1)
- Scientific Research Letters and Essays (2)
- Studia Geophysica et Geodaetica (3)
- Sensors (3)
- Survey in Geophysics (7)
- Earth Science Reviews (2)
- Frontiers in Earth Sciences (1)
- Proceeding of IAG symposia (3)
- Earth Science Informatics (1)
- Engineering Journal of Geospatial Information Technology (9)
- International Journal of Geomathematics (1)
- Tectonophysics (2)
- Kart og Plan (1)
- Journal of the Earth and Space Physics (2)
- Meteorology and Atmospheric Science (1)
- Marine Technology Society Journal (1)
- Journal of Earth Observation and Remote Sensing (1)
- GPS Solutions (7)
- Geodesy and Cartography (1)
- Geoscientific Model Developments (GMD) (1)
- Iranian Journal Geophysics (2)
- International Journal of environmental engineering (1)
- Quantum Science and Technology (1)
- Proceeding of International Association of Geodesy Symposium 2022, 2023 (2)

## Research project evaluation assignments

- The Dutch research council 2010.
- The Austrian research council 2012.
- The Austrian Research Funding 2014.
- Project report for Islamic Azad University, South of Tehran Branch, Tehran, Iran, 2007.
- Reporter of the Romanian research council, Bucharest, Romania, October 2012.
- German Research Foundation 2018.
- German Research Foundation 2019.
- Dutch Research Council 2021.
- NWO, the Dutch Research Council 2023



## Review assignment of book proposals

- The Dynamic Changes of Earth's Gravity Field, Elsevier
- Understanding the Bouguer Anomaly: A Gravimetry Puzzle, Elsevier
- Seismotectonics of the east mediterranean-Red Sea area, ASTI Springer's series

## Assignments as examiner

- Karimi Doona A. (2012) Analytical Modelling of the gravity variations due to co-seismic deformations, MSc thesis in Geodesy, KNToosi University of Technology, Tehran, Iran.
- Rezapour M. (2012) Investigation of the relation among the components of the deflection of vertical and tensor of gravitation in the Persian Gulf, MSc. thesis in Hydrography, Islamic Azad University, North of Tehran Branch, Tehran, Iran.
- Hosseinpour V. (2012) Geodynamical interpretations of satellite gradiometry data in Persian Gulf using global GOCE model, MSc thesis in Hydrography, Islamic Azad University, North of Tehran Branch, Tehran, Iran.
- Rastboud A. (2012) Earth surface deformation modelling in the oblique collision zone of Arabic- Eurasia in the region of Iranian plateau based on boundary element method, PhD thesis in Geodesy, KNToosi University of Technology, Tehran, Iran.
- Abdalla A. (2013) The combined modelling of the regional quasigeoid of New Zealand using gravity and GPS/levelling data, PhD thesis in Geodesy, University of Otago, Dunedin, New Zealand.
- Zhao Y. (2013) Key technologies in low-cost integrated vehicle navigation system, PhD thesis in Geodesy, Royal Institute of Technology (KTH), Sweden.
- Ssegendo R. (2015) A height datum for Uganda based on a gravimetric quasigeoid model and GNSS/levelling, PhD thesis in Geodesy, Royal Institute of Technology (KTH), Sweden
- Tayyab Naseer M. (2018) Continues Wavelet Transform of spectral decomposition analysis for fluvial reservoir characterization of Miano gas field, Indus Platform, Pakistan, PhD thesis in Geophysics, Quaid-i-Azam University, Islamabad, Pakistan.
- Iqbal N. (2018) Satellite gravimetry applications for groundwater resource management in the Indus Basin of Pakistan, PhD thesis in Geophysics, Quaid-i-Azam University, Islamabad, Pakistan.
- Answer Khan H. M. (2019) Effects of sand shale anisotropy on AVA based reservoir characterisation, PhD thesis in Geophysics, Quaid-I-Azam University, Islamabad, Pakistan.
- Pastorutti Alberto (2020) Inferring the lithospheric thermal structure from satellite gravimetry, PhD thesis in Geophysics, University of Trieste, Italy.
- Collia Dario (2020) Modelling and application of Mitral valve dynamics for reproducing the flow in the left ventricle of the human heart , PhD thesis in Biofluid Dynamics - Industrial engineering, University of Trieste, Italy.
- Ertunkay Deniz (2020) Temporal and spatial analysis of near fault stations in terms of impulsive behavior, PhD thesis in Geophysics, University of Trieste, Italy.
- Kubin Elizabeth (2020) Levantine intermediate and deep water formation and water mass characteristics: An Argo float study from 2000 to 2017 , PhD thesis in Oceanography and Atmospheric Physics, University of Trieste, Italy.
- Manu-Marfo Daniel (2020) Crust-Uppermost Mantle Shear-wave Velocity Structure and Buoyancy Flow Model beneath the Tyrrhenian Basin and Surrounding Margins, PhD thesis in Geophysics, University of Trieste, Italy.
- Velicogna Matteo (2020) Zircon dating and trace element content of transparent heavy

minerals in sandstones from the NE Alps and Outer Dinarides flysch basins, Mineralogy, University of Trieste, Italy.

- Aziz Omer (2020) Estimation of TOC Using Seismic and Well Log Data in Potential Shales of the Lower Indus Basin Pakistan: A Shale Gas Perspective. PhD thesis in Geophysics, Quaid-I- Azam University, Islamabad, Pakistan.
- Alexander Abrahamsson (2022) Data Science for in-process Chatter Classification, MSc thesis in Manufacturing Engineering, University West, Trollhättan, Sweden.
- Farzam Fatolazadeh (2022) Improving and downscaling GRACE and GRACE-FO data for retrieval of terrestrial water storage and groundwater storage changes at finer scale, PhD thesis in Remote Sensing, Sherbrooke University, Department of Applied Geomatics, Quebec, Canada.
- Muhamad Yassen (2023) Regional scale geological heritage diversity from Pakistan; an integrated approach based on surface mapping, petrology, stratigraphy and remote sensing data, PhD thesis in Geology, Quaid-I- Azam University, Islamabad, Pakistan.
- Muhammad Kamal (2023) Identification and quantification of Gas hydrates in Makran offshore area, Pakistan, PhD thesis in Geophysics, Quaid-I- Azam University, Islamabad, Pakistan.
- Saima Akram (2024) Implication of Geostatistical Inversion and Attribute Analysis for Thin Bed Prospect Detection in Lower Goru Formation, Badin Area, Pakistan, PhD thesis in Geophysics, Quaid-I- Azam University, Islamabad, Pakistan.

## **Assignments providing expert opinions, for example regarding employments**

- Tenured Associate Professorship of Dr. Aamir Ali, Quaid-i-Azam University, Islamabad Pakistan, 2019.
- Tenured Associate Professorship of Dr. Mumtaz Muhammad Shah, Quaid-i-Azam University, Islamabad Pakistan, 2019.
- Midterm position of Assistant Professorship of Dr. Abbas Ali Naseer, Quaid-i-Azam University, Islamabad, Pakistan, 2020.
- Midterm position of Assistant Professorship of Dr. Tahor Azeem, Quaid-i-Azam University, Islamabad, Pakistan, 2021.
- Evaluation of two candidates for associate professor position in Earth Sciences for Quaid-i-Azam University, Islamabad, Pakistan, 2021.
- Tenured Associate Professorship of Dr. Abbas Ali Naseem, Quaid-i-Azam University, Islamabad, Pakistan 2022.

## **Collaboration in research and education with other organisations and industry**

- The code company
- WSP
- Research Institute of Sweden (RISE)
- Vocational Universities (Yrkesakademien+yrkeshögskolan)
- Swedish Maritime Administration (Sjöfartsverket)

- National Land Survey of Sweden (Lantmäteriet)
- Lilla Edet Municipality
- Vänersborg Municipality

## Founder of Journal of Geodetic Science

In 2009, I wrote a journal proposal to Versita, which was an international publisher in Poland. The journal proposal was approved by the publisher in March 2010 and I officially signed the contract with Versita to start the journal. All members of the editorial board have been selected by me and my professor, Lars E. Sjöberg, who agreed to be the editor-in-chief of the journal. Later in 2012, Versita moved under de Gruyter umbrella and changed its name to de Gruyter Open. The journal is still active and open access without any charge to authors.

## Completed professional specialisations and courses

- **Monitoring Climate from Space**, European Space Agency, Future Learn, 3rd of January 2016
- FME desktop, Data translation for AEC
- [Machine Learning Specialisation of Stanford University](#) with the following courses:
  - [Supervised Machine Learning: Regression and Classification](#)
  - [Advanced Learning Algorithms](#)
  - [Unsupervised learning, recommenders, reinforcement learning](#)
- [GIS, Mapping and Spatial Analysis specialisation](#) of University of Toronto with following courses
  - [Introduction to GIS mapping](#)
  - [GIS data acquisition and map design](#)
  - [Spatial Analysis and Satellite Imagery in GIS](#)
  - [GIS, Mapping and Spatial Analysis capstone](#)
- **Big data specialisation of California University** with the following courses
  - [Introduction to Big data](#)
  - [Big Data Modelling and Management Systems](#)
  - Big data Integration and Processing
  - Machine Learning with Big Data
- [Remote Sensing, image acquisition, analysis and applications](#)

# Pedagogical merits

## Teaching experiences

### Geodetic Courses

#### First cycle

#### Geodesy 1 (3 p.)

**Method of teaching:** Lectures, case discussions, group assignments.

**Examination:** Written exam and written group assignments.

**Course evaluation:** questionnaire with open questions, standard questionnaire.

**Relation to contemporary research:** Nothing.

**My role:** Examiner and lecturer **Course Type:**

Compulsory **Universities:**

- **Islamic Azad University, Larestan Branch.**

Course period and participants: 2001 Autumn 34, 2002 Spring 37, 2003 Autumn 41, 2004 Spring 34, Autumn 32 students,

My effort: 2001-120, 2002-120, 2003-120, 2004-240 hours/year.

#### Geodesy 2 (3 p.)

**Course period:** 2003-Spring, 2005 Spring, Autumn.

**Method of teaching:** Lectures, case discussions, group assignments.

**Examination:** Written exam and written group assignments.

**Course evaluation:** questionnaire with open questions, standard questionnaire.

**Relation to contemporary research:** Nothing.

**My role:** Examiner and lecturer.

**Universities:**

- **Islamic Azad University, Larestan Branch**

Course period and participants: Spring 2003 41, Spring 2005 41, Autumn 2005 35 students.  
My effort: 2003-120 and 2005 240 hours.

- **Islamic Azad University, Shahr-e-Rey Branch**

Course period and participants: 2011-42, 2012-33, 35, 26, 38, 39 students.  
My effort: 2011-200, 2012-1000 hours/year.

#### Geodetic Astronomy (3 p.)

**Method of teaching:** Lectures, case discussions, group assignments.

**Examination:** Written exam and written group assignments.

**Course evaluation:** questionnaire with open questions, standard questionnaire.

**Relation to contemporary research:** Nothing.

**My role:** Examiner and lecturer

**Universities:**

- **Islamic Azad University, Larestan Branch**

Course period and participants: Spring 2003 41, Autumn 2003 32, Autumn 2004 41, Autumn 2005 36, Spring 2006 37 students. My effort: 120 hours/year.

- **Islamic Azad University, Shahr-e-Rey Branch**

Course period and participants: Spring 2011 21, Autumn 2011 30, Spring 2012 28 students.  
My Effort: 2011-160 and 2012-80 hours.

- **KNToosi University of Technology**

Course period and participants: Spring 2012 34 students  
My effort: 80 hours.

#### Satellite Geodesy (2 p.)

**Method of teaching:** Lectures, case discussions.

**Examination:** Written exam.

**Course evaluation:** questionnaire with open questions, standard questionnaire.

**Relation to contemporary research:** Nothing.

**My role:** Examiner and lecturer

**Universities:**

- **Islamic Azad University, South of Tehran Branch**

Course period and participants: Autumn 2004 39, Spring 2005 35, Autumn 2005 37 students.

My effort: 2004-80, 2005-160 hours.

## Geodesy 2 and Computations (4 p.)

**Method of teaching:** lectures, written individual assignment.

**Examination:** Written exam and written report.

**Course evaluation:** questionnaire with open questions, standard questionnaire.

**Relation to contemporary research:** Nothing.

**My role:** Examiner and lecturer.

**Universities:**

- **KNToosi University of Technology**

Course period and participants: Autumn 2012 35 students My effort: 2012-140 hours.

## Physical Geodesy (3 p.)

**Method of teaching:** lectures.

**Examination:** Written exam.

**Course evaluation:** questionnaire with open questions, standard questionnaire.

**Relation to contemporary research:** Nothing.

**My role and effort:** examiner and lecturer, 60 hours/year.

**Universities:**

- **KNToosi University of Technology**

Course period and participants: Autumn 2012-35 students. My effort: 60 hours.

## Computational Geodetic Astronomy and Geodesy (1 p.)

**Method of teaching:** Lectures, individual assignments.

**Examination:** Written exam and written group assignments.

**Course evaluation:** questionnaire with open questions, standard questionnaire.

**Relation to contemporary research:** Nothing.

**My role:** Examiner and lecturer.

**Universities:**

- **Islamic Azad University, Larestan Branch**

Course period and participants: Spring 2003 41, Spring 2004 38, Autumn 2004 34, Spring 2005 30, Autumn 2005 41, Spring 2006 44 students

My effort: 2003-80, 2004-160, 2005 160 and 2006 80 hours.

- **Islamic Azad University, Shahr-e-Rey Branch**

Course period and participants: Autumn 2003 32, Spring 2003 30, Autumn 2004 26, Spring 2004 25, Autumn 2005 31, Spring 2011 42 students.

My effort: 2003-80, 2004-160, 2005-80, 2011-80 hours.

## Computations in Adjustment and Map Projections (1 p.)

**Method of teaching:** Lectures, individual assignments.

**Examination:** Written exam and written group assignments.

**Course evaluation:** questionnaire with open questions, standard questionnaire.

**Relation to contemporary research:** Nothing.

**My role:** Examiner and lecturer.

**Universities:**

- **Islamic Azad University, Larestan Branch**

Course period and participants: Autumn 2003 41, Spring 2004 38, Autumn 2004 24, Spring 2005 33, Autumn 2005 37, Spring 2006 34 students.

My effort: 2003-80, 2004-160, 2005 160, 2006-80 hours.

- **Islamic Azad University, Shahr-e-Rey Branch**

Course period and participants: Autumn 2004 48, Autumn 2005 54, Autumn 2011 42, Spring 2012-32,

20, 19 students.

My effort: 2004-160, 2005-160, 2011-160 and 2012-480 hours.

## Practical Geodetic Astronomy

**Method of teaching:** project introduction and supervision, group assignments

**Examination:** report evaluation and oral examination.

**Course evaluation:** questionnaire with open questions, standard questionnaire.

**Relation to contemporary research:** Nothing.

**My role:** Examiner and lecturer.

**Universities:**

- **Islamic Azad University, Marvdash Branch**

Course period and participants: Summer 2005-21 students.

My effort: 40 hours.

- **Islamic Azad University, Zarand Branch**

Course period and participants: summer 2004-40 students.

My effort: 40 ours/year

- **Islamic Azad University, South of Tehran Branch**

Course period and participants: Summer 2001-20, 2002-18 students.

My effort: 2004-80, 2005-40 hours.

## Classical Geodesy

**Method of teaching:** lectures, case discussions, written group assignments.

**Examination:** Written exam and written group assignments.

**Course evaluation:** questionnaire with open questions, standard questionnaire.

**Relation to contemporary research:** Nothing. **My role:** Examiner

and lecturer, 40 hours/year.

**Universities:**

- **Islamic Azad University, South of Tehran Branch**

Course period and participants: Summer 2001-20, 2002-18 students.

My effort: 40 hours / year.

## Geomatics II (GEA121) (7.5 p.)

**Method of teaching:** Lectures, and project assignments.

**Examination:** written examination and report of the assignments.

**Course evaluation:** standard online questionnaire.

**Relation to contemporary research:** Nothing, this is very basic course.

**My role:** examiner and lecturer

**Universities:**

- **University West**

Course period and participants: Spring 2013 40 students.

My effort: 170/270 hours.

## Geomatics IV (GEB310) (7.5 p.)

**Method of teaching:** Lectures, and project assignments.

**Examination:** Report of the assignments.

**Course evaluation:** standard online questionnaire.

**Relation to contemporary research:** Slightly about GNSS researches

**My role:** Guest lecturer.

**Universities:**

- **University West**

Course period and participants: Autumn 2014 35 students. My effort: 70/270 hours.

## Geomatics 3 (GEO203) (7.5 p.)

**Method of teaching:** Lectures, and project assignments.

**Examination:** written examination and report of the assignments.

**Course evaluation:** standard online questionnaire.

**Relation to contemporary research:** Slightly about GNSS researches

**My role:** director, examiner and lecturer

Universities:

- **University West**

Course period and participants: Autumn 2014 35 students.  
My effort: 2014-150/288, 2015-150/290 hours.

## **Geomatics 4 (GEO210) (7.5 p.)**

**Method of teaching:** short lectures and project oriented.

**Examination:** Report evaluation and oral examination.

**Course evaluation:** standard online questionnaire.

**Relation to contemporary research:** Nothing.

**My role:** director, examiner and lecturer.

Universities:

- **University West**

Course period and participants: Spring 2015 10, Spring 2016 10 students.  
My effort: 2015-100/180, 2016-100/140 hours.

## **Geodetic measurement techniques (GMT100) (7.5 p.)**

**Method of teaching:** lectures, and project assignments.

**Examination:** written examination and report of the assignments.

**Course evaluation:** standard online questionnaire.

**Relation to contemporary research:** Nothing, very basic course.

**My role:** designer, director, examiner and lecturer

Universities:

- **University West**

Course period and participants: Springs of 2015 47, 2016 36, 2017 42 and 2018 51 students.  
My effort: 2015-100/300, 2016-150/150, 2017-292/592, 2018-80/340 hours.

## **Global Navigation Satellite Systems and measurement techniques (GNS200) (7.5 p.)**

**Method of teaching:** Lectures, blended and work-integrated learning, and project assignments.

**Examination:** written examination and report of the assignments, automatic quizzes

**Course evaluation:** standard online questionnaire, evaluation using mentimeter.

**Relation to contemporary research:** Slightly about the GNSS research

**My role:** designer, director, examiner and lecturer

Universities:

- **University West**

Course period and participants: Springs 2016-46, 2017-35, 2018-42 and 2019-45 students.  
My effort: 2016-200/300, 2017-270/470, 2018-70/290 and 2019-135/270 hours, 2022-140..

## **Reference Systems (REF400) (4 p.) voluntary**

**Method of teaching:** lectures, and work-integrated learning, and project assignments.

**Examination:** Project report and oral examination.

**Course evaluation:** standard online questionnaire, evaluation using mentimeter.

**Relation to contemporary research:** rather basic.

**My role and effort:** designer, director, examiner and lecturer

Universities:

- **University West**

Course period and participants: Springs 2017-18, 2018-2, 2019-4 students.  
My effort: 2017-75, 2018-60 and 2019-70 hours.

## **Geodetic Reference Systems (GRS400) (7.5 p.)**

**Method of teaching:** lectures, and work-integrated learning, and project assignments.

**Examination:** Project report and oral examination.

**Course evaluation:** standard online questionnaire, evaluation using mentimeter.

**Relation to contemporary research:** rather basic.

**My role and effort:** designer, director, examiner and lecturer

Universities:

- **University West**

Course period and participants: Springs 2021-12 students.  
My effort: 180 hours.

## Basic Geodetic measurement technique

**Method of teaching:** lectures, and work-integrated learning, and project assignments.

**Examination:** Project report and oral examination.

**Course evaluation:** standard online questionnaire, evaluation using mentimeter.

**Relation to contemporary research:** rather basic.

**My role and effort:** designer, director, examiner and lecturer

**Universities:**

- [University West](#)

Course period and participants: Springs 2022-30 students.

My effort: 180 hours.

## Construction Surveying and organisation

**Method of teaching:** lectures, and work-integrated learning, and project assignments.

**Examination:** Project report and oral examination.

**Course evaluation:** standard online questionnaire, evaluation using mentimeter.

**Relation to contemporary research:** rather basic.

**My role and effort:** designer, director, examiner and lecturer

**Universities:**

- [University West](#)

Course period and participants: Springs 2022-12 students.

My effort: 180 hours.

## Second cycle

### Gravimetric Satellite Geodesy (3 p.)

**Method of teaching:** lectures, individual project.

**Examination:** Written exam, project report.

**Course evaluation:** questionnaire with open questions, standard questionnaire.

**Relation to contemporary research:** Very much related to all research about satellites, and gravity field, the recent research articles are discussed in this course from a variety of authors.

**My role:** examiner and lecturer.

**Universities:**

- [KNToosi University of Technology](#)

Course period and participants: Springs 2011 9, 2012 8 students.

My effort: 60 hours/year.

### Advanced Physical Geodesy (3 p.)

**Method of teaching:** lectures, case discussions, written group assignments.

**Examination:** Written exam and written group assignments.

**Course evaluation:** questionnaire with open questions, standard questionnaire.

**Relation to contemporary research:** Very much related to all research about satellites, and gravity field, the recent research articles are discussed in this course from variety of authors.

**My role:** designer, examiner and lecturer.

**Universities:**

- [KNToosi University of Technology](#)

Course period and participants: Springs 2011 6, 2012 12 students.

My effort: 60 hours/year.

## Third cycle



## Statistical Methods in Physical Geodesy (3 p.)

**Method of teaching:** lectures, and individual assignments.

**Examination:** written examination and report of the assignments.

**Course evaluation:** questionnaire with open questions, standard questionnaire.

**Relation to contemporary research:** very advanced and highly related to the research that I do in my field.

**My role:** course designer, examiner and lecturer.

**Universities:**

- **KNToosi University of Technology**

Course period and participants: Autumn 2012 4 students. My effort: 60 hours/year.

## Four-dimensional Geodesy (3 p.)

**Method of teaching:** lectures, and individual assignments.

**Examination:** written examination and report of the assignments.

**Course evaluation:** questionnaire with open questions, standard questionnaire.

**Relation to contemporary research:** very advanced and highly related to the research that I do in my field, especially in inversion methods.

**My role:** examiner and lecturer, 30 hours/year.

**Universities:**

- **KNToosi University of Technology**

Course period and participants: Autumn 2011 1 students. My effort: 60 hours/year.

## Advanced Physical Geodesy (3 p.)

**Method of teaching:** lectures, and individual assignments.

**Examination:** written examination and report of the assignments.

**Course evaluation:** questionnaire with open questions, standard questionnaire.

**Relation to contemporary research:** very advanced and highly related to the research that I do in my field, especially in inversion methods.

**My role:** examiner and lecturer, 30 hours/year.

**Universities:**

- **Ethiopian Space Science and Technology Institute**

Course period and participants: Autumn 2021 2 students. Autumn 2022 2 students.

My effort: 60 hours/year.

## Regularisation methods (3 p.)

**Method of teaching:** lectures, and individual assignments.

**Examination:** written examination and report of the assignments.

**Course evaluation:** questionnaire with open questions, standard questionnaire.

**Relation to contemporary research:** very advanced and highly related to the research that I do in my field, especially in inversion methods.

**My role:** examiner and lecturer, 30 hours/year.

**Universities:**

- **KNToosi University of Technology**

Course period and participants: Autumn 2021 1 students.  
My effort: 60 hours/year.

## Space Geodesy (3 p.)

**Method of teaching:** lectures, and individual assignments.

**Examination:** written examination and report of the assignments.

**Course evaluation:** questionnaire with open questions, standard questionnaire.

**Relation to contemporary research:** very advanced and highly related to the research that I do in my field.

**My role:** examiner and lecturer, 30 hours/year.

**Universities:**

- **Ethiopian Space Science and Technology Institute**

Course period and participants: Autumn 2021 2 students.  
My effort: 60 hours/year.

## Mathematics, statistics, Adjustment theory

### First cycle

### Calculus I (3 p.)

**Method of teaching:** Lectures.

**Examination:** Written exam.

**Course evaluation:** Questionnaire with open questions, standard questionnaire.

**Relation to contemporary research:** Nothing.

**My role:** Examiner and lecturer.

**Universities:**

- **Islamic Azad University, Larestan Branch**

Course period and participants: Springer 2003 41 students

My effort: 60 hours/year.

### Least-Squares Adjustment and Statistical Tests (3 p.)

**Method of teaching:** lectures and individual project

**Examination:** Written exam and individual project report.

**Course evaluation:** questionnaire with open questions, standard questionnaire.

**Relation to contemporary research:** Nothing.

**My role:** examiner and lecturer.

**Universities:**

- **Islamic Azad University, South of Tehran Branch**

Course period and participants: Autumn 2005 37 students

My effort: 60 hours/year.

### Theory of Errors (2 p.)

**Method of teaching:** lectures, case discussions, written group assignments.

**Examination:** Written exam and written group assignments.

**Course evaluation:** questionnaire with open questions, standard questionnaire.

**Relation to contemporary research:** Nothing.

**My role:** Examiner and lecturer.

**Universities:**

- **Islamic Azad University, Shahr-e-Rey Branch**

Course period and participants: Spring 2005 13+34+51, Autumn 2011 41, Spring 2012 30+32 students

My effort: 2005-120, 2011-40, 2012-80 hours.

### Estimation theory and hypothesis testing in Geodesy and Photogrammetry (EHG400), 4 p.,

**Method of teaching:** lectures, and work-integrated learning, and project assignments.

**Examination:** Project report and oral examination.

**Course evaluation:** standard online questionnaire, evaluation using mentimeter.

**Relation to contemporary research:** Very much related to research.

**My role and effort:** designer, director, examiner and lecturer.

**Universities:**

- **University West**

Course period and participants: Springs 2017-18, 2018-2 and 2019-4 students  
My effort: 2017-75, 2018-60, 2019-70, 2020-60, 20201-60 hours.

## Geodetic measurement uncertainty theory and network adjustment, 7.5 p.

**Method of teaching:** lectures, and e-learning, and project assignments.

**Examination:** Project report and written examination.

**Course evaluation:** standard online questionnaire, evaluation using mentimeter.

**Relation to contemporary research:** Very much related to research.

**My role and effort:** designer, director, examiner and lecturer.

**Universities:**

- **University West**

Course period and participants: Springs 2020-10, 2021-12 students

My effort: 2020-160, 2021-180 hours.

## Mathematics and Statistical Methods

**Method of teaching:** lectures, and e-learning, and assignments.

**Examination:** Project report and written examination.

**Course evaluation:** standard online questionnaire, evaluation using mentimeter.

**Relation to contemporary research:** basic

**My role and effort:** director, examiner and lecturer.

**Universities:**

- **Hermods vocational school**

Course period and participants: Autumn 2023, two groups, A 32 students and B 24 students

My effort: 216 hours.

### Second cycle

## Statistical Process Control and Design of Experiments (SPF610), (7.5 p.)

**Method of teaching:** lectures, blended and work-integrated learning, and project assignments.

**Examination:** written examination, project report and seminar.

**Course evaluation:** standard online questionnaire, evaluation using mentimeter. **Relation to contemporary research:** slightly related to researches in marine Geodesy **My role:** examiner and lecturer.

**Universities:**

- **University West**

Course period and participants: Springs 2019-7, 2020-12 students My effort: 2019-260, 2020-160 hours.

## GIS, Photogrammetry and Cadastre

### First cycle

#### Cadastre (2 p.)

**Method of teaching:** lectures.

**Examination:** Written exam.

**Course evaluation:** questionnaire with open questions, standard questionnaire.

**Relation to contemporary research:** Nothing.

**My role and effort:** Examiner and lecturer

**Course Type:** Compulsory

**Universities:**

- **Islamic Azad University, Larestan Branch**

Course period and participants: Autumn 2001, 23 students.

My effort: 80 hours/year

- **Islamic Azad University, Shahr-e-Rey Branch**  
Course period and participants: Spring 2004 42, Autumn 2004 33 students .  
My effort: 160 hours/year

### **Photogrammetry (3 p.)**

**Method of teaching:** lectures, case discussions, written group assignments.

**Examination:** Written exam and written group assignments.

**Course evaluation:** questionnaire with open questions, standard questionnaire.

**Relation to contemporary research:** Nothing.

**My role:** Examiner and lecturer.

**Universities:**

- **Islamic Azad University, Larestan Branch**  
Course period and participants: Autumn 2002 45, Spring 2003 41 students.  
My effort: 120 hours/year.

### **Geographic Information System 1 (GIS100)(7.5 p.)**

**Method of teaching:** lectures, and project assignments.

**Examination:** Report of the assignments.

**Course evaluation:** standard online questionnaire.

**Relation to contemporary research:** Slightly about GNSS researches

**My role:** Guest lecturer.

**Universities:**

- **University West**  
Course period and participants: Autumn 2018 ???, 2019 ??? students  
My effort: 10 hours/year

### **Geographic Information System 2 (GIS200)(7.5 p.)**

**Method of teaching:** lectures, and project assignments.

**Examination:** Report of the assignments.

**Course evaluation:** standard online questionnaire.

**Relation to contemporary research:** Slightly about GNSS researches

**My role and effort:** Guest lecturer, 10 hours/year.

**Universities:**

- **University West**  
**Course period and participants:** Springs 2019 ??? students  
**My effort: 10 hours.**

### **Applied Geodesy and Photogrammetry (TGF200)(7.5 p.)**

**Method of teaching:** lectures, digitalised lectures and project assignments.

**Examination:** written examination and report of the assignments.

**Course evaluation:** standard online questionnaire.

**Relation to contemporary research:** Nothing, very basic course.

**My role and effort:** designer, director, examiner and lecturer,

**Universities:**

- **University West**  
**Course period and participants:** 2015-46, 2016-35, 2017-40, 2018-47 students.  
**My effort:** 2015-100/200, 2016-180/180, 2017-273/353, 2018-180/300 and 2019-50/280 hours.

## **Surveying Courses**

**First cycle**

### **Geomatics 1 (GOM200) (7.5 p.)**

**Method of teaching:** lectures, and project assignments.

**Examination:** written examination and report of the assignments.

**Course evaluation:** standard online questionnaire.

**Relation to contemporary research:** Slightly about GNSS researches

**My role:** director, examiner and lecturer.

**Universities:**

- **University West**

Course period and participants: Autumn 2014 35 students.

My effort: 200/340 hours/year.

## Geomatics 2 (GEP220) (7.5 p.)

**Method of teaching:** lectures, and project assignments.

**Examination:** written examination and report of the assignments.

**Course evaluation:** standard online questionnaire.

**Relation to contemporary research:** Nothing

**My role and effort:** director, examiner and lecturer.

**Universities:**

- **University West**

Course period and participants: Spring 2013 45, Spring 2014 52 students.

My effort: 2013-292/442, 2014-200/340 hours.

## Computational Surveying (1 p.)

**Method of teaching:** Lectures, case discussions, group assignments.

**Examination:** Written exam and written group assignments.

**Course evaluation:** questionnaire with open questions, standard questionnaire.

**Relation to contemporary research:** Nothing.

**My role:** Examiner and lecturer.

**Universities:**

- **Islamic Azad University, Larestan Branch**

Course period and participants: Spring 2003 40, Autumn 2003 32, Spring 2004 33, Autumn 2004 41 students.

My effort: 120 hours/year.

- **Islamic Azad University, Shahr-e-Rey Branch**

Course period and participants: Spring 2003 41, Spring 2004 40, Spring 2005 37 students.

My effort: 60 hour/year

## Computational Route Surveying (1 p.)

**Method of teaching:** lectures, case discussions, written group assignments.

**Examination:** Written exam and written group assignments.

**Course evaluation:** questionnaire with open questions, standard questionnaire.

**Relation to contemporary research:** Nothing.

**My role:** Examiner and lecturer.

**Universities:**

- **Islamic Azad University, Larestan Branch**

Course period and participants: Autumn 2001 32, Spring 2002 34, Autumn 2003 45, Spring 2004 37 students. My effort: 120 hours/year.

- **Islamic Azad University, Shahr-e-Rey Branch** Course period and participants: 2004 35 students. My effort: 80 hours/year.

## Practical Surveying (1 p.)

**Method of teaching:** Project description and supervision.

**Examination:** Report evaluation and oral examination.

**Course evaluation:** questionnaire with open questions, standard questionnaire.

**Relation to contemporary research:** Nothing. **My role and**

**effort:** examiner and supervisor. **Universities:**

- **Islamic Azad University, Zarand Branch**

Course period and participants: Autumn 2004 43 students. My effort: 300 hours/year.

## Route Surveying (3 p.)

**Method of teaching:** lectures and group assignments.

**Examination:** Written exam, report evaluation and oral examination.

**Course evaluation:** questionnaire with open questions, standard questionnaire.

**Relation to contemporary research:** Nothing.

**My role and effort:** examiner, lecturer and supervisor.

**Universities:**

- **Islamic Azad University, Zaranj Branch**  
Course period and participants: Autumn 2004 35 students. My effort: 200 hours.
- **Islamic Azad University, Shahr-e-Rey Branch**  
Course period and participants: Spring 2005 44 students. My effort: 120 hours/year.

## Surveying (3 p.)

**Method of teaching:** lectures, case discussions, written group assignments.

**Examination:** Written exam and written group assignments.

**Course evaluation:** questionnaire with open questions, standard questionnaire.

**Relation to contemporary research:** Nothing.

**My role and effort:** examiner and lecturer, 160 hours/year.

**Universities:**

- **Islamic Azad University, Qazvin Branch (Dept. Civil Eng.)**  
Course period and participants: 2004 33 students. My effort: 160 hours.
- **Islamic Azad University, Shahr-e-Rey Branch**  
Course period and participants: Autumn 2005 36, Autumn 2011 23 students  
My effort: 2005 200 and 2011 120 hours.

## Automation in Surveying (2 p.)

**Method of teaching:** lectures, case discussions, written group assignments.

**Examination:** Written exam and written group assignments.

**Course evaluation:** questionnaire with open questions, standard questionnaire.

**Relation to contemporary research:** Nothing.

**My role and effort:** examiner and lecturer, 100 hours/year.

**Universities:**

- **Islamic Azad University, Shahr-e-Rey Branch**  
Course period and participants: Autumn 2013 23 students.  
My effort: 100 hours/year.

## Hydrographic Surveying

**Universities:**

- **Islamic Azad University, Shahr-e-Rey Branch**  
Course credit: 3 p.  
Method of teaching: lectures, case discussions, written group assignments. Examination: Written exam and written group assignments.  
Course evaluation: questionnaire with open questions, standard questionnaire. Relation to contemporary research: Nothing.  
My role and effort: examiner and lecturer, 360 hours/year. Course period and participants: 2011-26, 30, 11 students. My effort: 360 hours/year.
- **University West**  
Course credit: 4 p.  
Method of teaching: lectures, and work-integrated learning, and project assignments.  
Examination: Project report and oral examination.  
Course evaluation: standard online questionnaire, evaluation using mentimeter. Relation to contemporary research: slightly related to researches in marine Geodesy  
My role and effort: designer, director, examiner and lecturer.  
Course period and participants: Springs 2017 18, 2018 3, 2019 4 students. students.  
My effort: 2017-75, 2018-60 and 2019-70 hours.

## General skills

### First cycle

#### Technical English (2 p.)

**Method of teaching:** Lectures, case discussions, written group assignments.

**Examination:** Written exam and written group assignments.

**Course evaluation:** questionnaire with open questions, standard questionnaire.

**Relation to contemporary research:** Nothing.

**My role:** Examiner and lecturer.

**Universities:**

- **Islamic Azad University, Larestan Branch**

Course period and participants: Spring 2004 25, Autumn 2004 22, Spring 2005 20, Autumn 2005 23, Spring 2006 30 students.

My effort: 2004-80, 2005-80, 2006 40 hours.

- **Islamic Azad University, Shahr-e-Rey Branch**

Course period and participants: Spring 2003 27, Spring 2004 34, Spring 2005 41 students.

My effort: 40 hours/year

- **Islamic Azad University, South of Tehran Branch**

Course period and participants: Autumn 2004 39, Spring 2004, Autumn 2005 37 students.

My effort: 2004-80, 2005-40 hours.

#### Supervision (2 p.)

**Method of teaching:** lectures, case discussions, written group assignments.

**Examination:** Written exam and written group assignments.

**Course evaluation:** questionnaire with open questions, standard questionnaire.

**Relation to contemporary research:** Nothing.

**My role and effort:** examiner and lecturer **Universities:**

- **Islamic Azad University, Shahr-e-Rey Branch**

Course period and participants: NA

My effort: NA

#### Seminar (2 p.)

**Method of teaching:** lectures, and individual assignments.

**Examination:** written report and oral presentation.

**Course evaluation:** questionnaire with open questions, standard questionnaire.

**Relation to contemporary research:** related to writing research articles and reports necessary for any type of research.

**My role:** examiner and lecturer.

**Universities:**

- **KNToosi University of Technology**

Course period and participants: Autumn 2011 6 students

My effort: 40 hours.

#### Examination work (EX575)(15 hp.)

**Method of teaching:** Supervision and examination.

**Examination:** Thesis presentation.

**Course evaluation:** standard online questionnaire.

**Relation to contemporary research:**

**My role:** Supervisor and examiner and lecturer.

**Universities:**

- **University West**

Course period and participants: NA

My effort: 60/438 hours.

#### Examination work (EXM504)(15 p.)

**Method of teaching:** Supervision and examination.

**Examination:** Thesis presentation.

**Course evaluation:** standard online questionnaire.

**Relation to contemporary research:**

**My role:** Supervisor and examiner and lecturer,

**Universities:**

- **University West**

Course period and participants: NA

My effort: 2015-120/895, 2016-60/740, 2017-50/660, 2018-30/560, 2019-40/770 hours.

## **Introduction to higher education and surveyors role in the society (ILS100)(7.5 hp.)**

**Method of teaching:** lectures, and project assignments.

**Examination:** Report of the assignments.

**Course evaluation:** standard online questionnaire.

**Relation to contemporary research:** Slightly about GNSS researches

**My role:** Guest lecturer.

**Universities:**

- **University West**

Course period and participants: 2019 52 students

My effort: 70/380 hours.

## **Scientific Methods and Theory (VTM403, 408), 3.5 hp., compulsory**

**Method of teaching:** lectures, and project assignments.

**Examination:** Report of the assignments.

**Course evaluation:** standard online questionnaire.

**Relation to contemporary research:** Slightly about GNSS researches

**My role:** Guest lecturer.

**Universities:**

- **University West**

Course period and participants: Autumns 2019 40, 2022 10 students

My effort: 2019 8 hours/years, 2022 100 hours

**Second cycle**

## **Scientific writing (VSK600) (3 hp.)**

**Method of teaching:** lectures, blended and work-integrated learning, and project assignments.

**Examination:** written examination, project report and seminar.

**Course evaluation:** standard online questionnaire, evaluation using mentimeter.

**Relation to contemporary research:** slightly related to researches

**My role and effort:** Guest lecturer

**Universities:**

- **University West**

Course period and participants: Autumns 2019 20 students, 2021 40 students

My effort: 2019 5 hours, 2021 80 hours.

**Third cycle**

## **Research methodology, design of experiments, publication techniques (7.5 hp.)**

**Method of teaching:** lectures, and project assignments.

**Examination:** seminar and paper submission.

**Course evaluation:** standard online questionnaire

**Relation to contemporary research:** slightly related to researches

**My role and effort:** lecturer and examiner

**Universities:**

- **University West**



Course period and participants: Autumns 2020-10, 2021-10 students  
My effort: 2020 30 hours., 2021-160 hours

## **Production and development of teaching and learning material.**

### **Lecture notes**

- Basis and Principles of Geometrical Geodesy in Persian 2001.
- Geodetic Measurement Theory” in Swedish, 200 pages
- Global Navigation Satellite Systems and measurement techniques in Swedish, 100 pages.

### **Powerpoint Slides**

- Geodetic measurement techniques
- Applied Geodesy and Photogrammetry, I have recorded my voice on some of the lectures so that students can listen to my lectures whenever they wish.
- Global Navigation Satellite Systems
- Estimation theory and hypothesis testing in Geodesy and Photogrammetry
- Reference systems
- Hydrographic Surveying
- Statistical Process Control and Design of Experiments
- Scientific writing
- Research methodology, design of experiment and publication techniques

### **Instructions**

- All courses that I have been their director, contain practical projects, and I have written instructions and guides for the students so that they can follow and learn the procedures and see how the theories are applied in practice.

### **Quiz games**

- For the course GNSS I have designed eight quiz games that the students play with by answering some questions online on Canvas. Canvas selects some questions from the designed question banks for each subject randomly and shuffle the answers. The students should find the correct ones. They need to respond to all questions correctly to get the considered bonus credits. The students can repeat each quiz unlimited times before the specified deadline.

## **Educational administration and formal leadership roles.**

### *Islamic Azad University, Shahr-e-Rey Branch*

- Supervisor of department of Surveying
- Deputy-head of Cartography department
- Head of department of Surveying

### *KNToosi University of Technology*

- Head of department of Geodesy

## Collaboration within study programme

### *KNToosi University of Technology*

#### Design of MSc courses

- Advanced Physical Geodesy
- Gravimetric Satellite Geodesy

#### Design of PhD course

- Statistical Methods in Physical Geodesy

### *University West*

- Geodetic Measurement Techniques (Surveying) (7.5 p.)
- Applied Geodesy and Photogrammetry (7.5 p.)
- Global Navigation Satellite Systems and measurement techniques (7.5 p.)
- Estimation Theory and Hypothesis Testing in Geodesy and Photogrammetry (4 p.)
- Reference Systems (4 p.)
- Hydrographic Surveying (4 p.)
- Geodetic measurement uncertainty theory and adjustment (7.5 p.)
- Global Navigation Satellite Systems (7.5 p.)
- Geodetic Reference Systems (7.5 p.)

## Supervisions

### First cycle

- Shahbandlou S. (2006) Map projections, Islamic Azad University, Shahr-e-Rey branch, Tehran, Iran. (in Persian)
- Ingridsson S. (2014) Error sources in NRTK, University West, Trollhättan, Sweden. (in Swedish)
- Andersson H. and Gannholm R. (2015) Alternativ GNSS-utrustning för naturvårdsuppdrag- En jämförelsestudie mellan olika generationer av instrument, Högskolan Väst, Trollhättan, Sverige
- Kvarnström V. och Wallerström J. (2015) Realtidsmätning inom fastighetsbildning med 'PPP', Högskolan Väst, Trollhättan, Sverige
- Håkansson L. och Herrström E. (2015) Transformerade koordinater I referenssystemet SWEREF99-Orsaker till och effekter av koordinatavvikelser I referenssystemet, Högskolan Väst, Trollhättan, Sverige
- Johansson F. and Karlsson L. (2017) Displacement Analysis of a Geodetic Network: A case study of the Vasa warship, University West, Sweden.
- Berntsson J. (2019) A study on quality description for the NKG2015 geoid model over the Nordic countries, University West, Sweden.

- Rizk S. and Drottz L. (2021) Sea level rise over Fennoscandia, a statistical test, University West, Sweden.
- Abbas H, and Ali M.R. (2022) Kollimationsfel hos avvägare, estimeringsmetoder och osäkerhetsanalys, Högskolan Väst, Sverige.
- Eklöf C. and Ljajic S. (2022) Analys av jorddeformationer i krigsdrabbade områden i Ukraina med hjälp av InSAR-mätningar och Sentinel-1, Högskolan Väst, Sverige.

## Second cycle

- Romeshkani M. (2011) Validation of GOCE data using terrestrial gravity anomalies, KNToosi University of Technology, Tehran, Iran. (Main supervisor)
- Ghorbannia M. (2014) Local gravity field recovery from orbital and gradiometry data, KNToosi University of Technology, Tehran, Iran. (Main supervisor)
- Ebadi S. (2014) Geoid determination based on recent developments, KNToosi University of Technology, Tehran, Iran. (Elected as the best MSc thesis of the year at KNToosi University of Technology). (Main supervisor)
- Zoghi S. (2015) On the statistical test of Fennoscandian GNSS/levelling data, Royal Institute of Technology (KTH), Stockholm, Sweden. (Main supervisor)
- Seif M. (2009) Orbit improvements of low Earth orbiting satellites by Kalman filter, KNToosi University of Technology, Tehran, Iran. (co-supervisor)
- Miles L. (2022) Estimating Robot Velocity Using Machine Vision Techniques, University West, Sweden. (under progress) (Main supervisor)
- Bhat A. (2022) On the precision of robot navigation using machine vision techniques, University West, Sweden. (under progress). (Main supervisor)
- Amana A. M. (2022) Robustness in design of experiments in manufacturing course, University West, Sweden (Main supervisor).

## Third cycle

- Mohammad Amin Alizadeh-Khameneh (2013) On optimisation and design of geodetic networks, Licentiate thesis in Geodesy, Royal Institute of Technology (KTH), 2013, FORMAS, Licentiate.
- Mutloob Hussain (2017) Quaid-i-Azam University in Islamabad, Pakistan, started his PhD training in 2013, the funding was from Quaid-i-Azam University, PhD in Geophysics, 2017.
- Andenet Ashagrie Gedamu, Ethiopian Space Science and Technology Institute (ESSTI) in cooperation with Addis Ababa University, 2015, funding from Entoto Observatory and Research Centre and ESSTI, PhD in Geodesy, thesis title: *Geophysical applications of the GOCE data over Ethiopia, Gravity field, Moho and Stress modelling*, 15th of December 2021.
- Farzam Fatolazadeh (2022) *Improving and downscaling GRACE and GRACE-FO data for retrieval of terrestrial water storage and groundwater storage changes at finer scale*, PhD in Remote Sensing, Sherbrooke University, Department of Applied Geomatics, Quebec, Canada.
- Majid Abrehdary, Royal Institute of Technology (KTH), 2010-2014, Scholarship from Islamic Azad University, North of Tehran branch and Project from Swedish National Space Board, PhD in Geodesy, defended his thesis with the title *Recovering Moho parameters using gravimetric and seismic data* in 2016.
- Andnet Nigussie Habte (2024), *Determination of Crustal Deformation and Stress using PSInSAR and GPS over Afar Region*, PhD in Geodesy. Ethiopian Space Science and Technology Institute (ESSTI) in cooperation with Addis Ababa University,

- funding from Entoto Observatory and Research Centre and ESSTI,
- Pardon Maunga (under progress) Determination of a precise geoid model for the establishment of a modern vertical geodetic datum in Zimbabwe, Midlands State University, Zimbabwe
  - Fereydoon Keshawarz Hedayati (under progress) KNTToosi University of Technology, Iran.

## **Completed pedagogic courses**

- Research Supervision (3 p.), year 2010, Royal Institute of Technology (KTH)
- Worked-integrated learning (7.5 p.), year 2017, University West
- Examinership (1 p.), year 2018, University West
- Norm Critical Education in Higher Education (NPH600) 5 p., year 2019, University West
- Work-integrated learning - on scientific basis and with proven experience (ALV600) 5 p., year 2019, University West
- Digital Tools in higher education, 5 p, year 2020, University West

## **Administration, management and collaboration**

- Head of the Department of Surveying of Rajae Technical Institute, from 2000 to 2003.
- Supervisor of the Department of Surveying at Islamic Azad University, Shahr-e-Rey branch, 2004/10/24-2005/03/10.
- Vice-head of Department of Cartography at Islamic Azad University, Shahr-e-Rey branch, 2004/10/24-2005/03/10.
- Head of Department of Surveying at Islamic Azad University, Shahr-e-Rey branch, 2005/05/22-2006/06/22.
- Head of research office at faculty of Science and Graduates studies at Islamic Azad University, 2005/03/10-2006/08/30.
- Head of Association of Surveying of Islamic Azad University, Shahr-e-Rey Branch, Since 2004 to 2006.
- Head of Department of Geodesy, at KNTToosi University of Technology, 2012/10/28-2013/07/09.