

Curriculum Vitae

Personal Data

Name : Hussein Abou-Elsoaad Hussein Abd-Elmotaal
Title : Prof. Dr. techn.
Nationality : Egyptian
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Academic Degrees

- Ph.D. Civil Engineering (Major: Surveying and Geodesy), with ***Distinction*** grade, August 1991, Graz University of Technology, Institute of Theoretical Geodesy, Graz, Austria (ÖAD Ph.D. Scholarship; supervisor: Prof. Dr. Helmut Moritz).
- M.Sc. Civil Engineering (Major: Surveying and Geodesy), January 1987, Ain Shams University, Cairo, Egypt (grade of M.Sc. courses: ***Excellent***).
- B.Sc. Civil Engineering (Major: Public Works Engineering), June 1983, Ain Shams University, Cairo, Egypt (grade: **83.38%**).

Professional Work

May 2012 – present : Rank of Vice Rector, Minia University, Minia, Egypt
May 2002 – present : Full Professor of Surveying and Geodesy,
Civil Engineering Department,
Faculty of Engineering, Minia University, Minia, Egypt
Jan 2004 – Jan 2007 : Head, Civil Engineering Department,
Faculty of Engineering, Minia University, Minia, Egypt
Apr 1997 – May 2002: Associate Professor, Civil Engineering Department,
Faculty of Engineering, Minia University, Minia, Egypt
Dec 1991 – Apr 1997 : Assistant Professor, Civil Engineering Department,
Faculty of Engineering, Minia University, Minia, Egypt
Feb 1987 – Dec 1991 : Assistant Lecturer, Civil Engineering Department,
Faculty of Engineering, Minia University, Minia, Egypt
Sep 1984 – Feb 1987 : Instructor (Graduate Teaching Assistant), Civil Engineering
Department, Faculty of Engineering, Minia University, Egypt

Prizes and Honour Degrees

- Winner of the *Minia University Award for International Publication, 2014, 2017, 2019, 2020 & 2021*.
- Winner of the *Faculty of Engineering, Minia University Award for Best International Publication, 2016*.
- National Representative, *International Association of Geodesy* (2020 – present).
- Editor for the *Journal of International Association of Geodesy Symposia* since 2013.
- Editor for the *Journal of Geodetic Science* since 2018 (<https://www.degruyter.com/view/j/jogs>).
- Editor for the *Journal of Advanced Engineering Trends* since 2018 (<https://jaet.journals.ekb.eg/>).
- Editor for the *Journal of Modern Research* since 2019 (<https://jmr.journals.ekb.eg/>).
- Appointed an *International Association of Geodesy (IAG) Fellow, 2011*.
- Winner of the *Ideal Professor Prize, 2008* (Faculty of Engineering, Minia University).
- Winner of the *Nation Encouraging Prize in Engineering Sciences, 2003* (Egyptian Academy of Scientific Research & Technology, Ministry of Scientific Research).
- Winner of the *IAG Best Paper Award for Young Scientists, 1993*.

Leadership

- Head of the Promotion Committee for University staff members (Public Works Engineering), Egyptian Ministry of Higher Education (2019 – present).
- Member of the Advisory Board of the International Geoid Service, International Association of Geodesy (2015 – present) (URL: <http://igfs.topo.auth.gr/igfs-structure/>).
- Chair of the IAG Sub-Commission on Regional Geoid Modelling (2011 – 2015; 2019 – present) (URL: <https://com2.iag-aig.org/sub-commission-24>).
- Chair of the IAG Sub-Commission on gravity and geoid in Africa (2007 – present) (URL: <https://com2.iag-aig.org/sub-commission-24>).
- Advisor, International Service for the Geoid ISG (2019 – present) (URL: <http://www.isgeoid.polimi.it/>).
- Steering Committee member, IAG Communication and Outreach Branch (2019 – present) (URL: <https://iag-aig.org/communication-and-outreach/62>).
- Head, Civil Engineering Department, Faculty of Engineering, Minia University (2004-2007).
- National Representative, International Association of Geodesy (2020 – present).
- Project manager, “Improving Transportation Engineering Education through Field Problems: Proof of Concept for Course Material Prototype”, supported by the Higher Education Enhancement Project Fund (HEEPF), Egyptian Ministry of Higher Education, February 2005 – March 2007 (URL: <http://mu.minia.edu/sites/HEEPF/index.htm>).
- Project coordinator, Tempus project JEP-34039-2006, “Integration of Road Engineering IT-Technologies at Egyptian Universities”, supported by European Commission, September 2007 – August 2009 (URL: <http://www.ireiteu.com/>).
- Principal Investigator, “Computation of Detailed Precise Geoid for Egypt”, supported by the Science and Technology Development Fund STDF, Egyptian Ministry of Scientific Research, 2012 – 2015.
- Principal Investigator, “African Geoid - AFRgeoid”, supported by the Science and Technology Development Fund STDF in the framework of the German-Egyptian Scientific Projects, Egyptian Ministry of Scientific Research, 2012 – 2015.

- Principal Investigator, “Detailed Geoid Model for Africa”, supported by the International Union of Geodesy and Geophysics IUGG, 2012 – 2014.
- Principal Investigator, “Improved African Geoid Model”, supported by the Science and Technology Development Fund STDF in the framework of the German-Egyptian Scientific Projects, Egyptian Ministry of Scientific Research, 2015 – 2017.
- Principal Investigator, “Determination of the Earth’s mathematical surface in Africa towards the realization of the International Height Reference System (IHRs)”, supported by the International Union of Geodesy and Geophysics IUGG, 2016 –2018.
- Principal Investigator, “A Unified Height Reference System for Africa (AFRUHRS)”, supported by the International Union of Geodesy and Geophysics IUGG, 2020 –2022.

International Posts

- Member of the Advisory Board of the International Geoid Service, International Association of Geodesy (2015 – present) (URL: <http://igfs.topo.auth.gr/igfs-structure/>).
- Chair of the IAG Sub-Commission on Regional Geoid Modelling (2011 – 2015; 2019 – present) (URL: <https://com2.iag-aig.org/sub-commission-24>).
- Chair of the IAG Sub-Commission on gravity and geoid in Africa (2007 – present) (URL: <https://com2.iag-aig.org/sub-commission-24>).
- Advisor, International Service for the Geoid ISG (2019 – present) (URL: <http://www.isgeoid.polimi.it/>).
- Steering Committee member, IAG Communication and Outreach Branch (2019 – present) (URL: <https://iag-aig.org/communication-and-outreach/62>).

Memberships

- Member of the Advisory Board of the International Geoid Service, International Association of Geodesy (2015 – present).
- Member of the Promotion Committee for University staff members (Public Works Engineering), Egyptian Ministry of Higher Education (2013 – 2016).
- Member of the Examiners Committee for promoting university staff members (Surveying and Geodesy), Egyptian Ministry of Higher Education (2007 – present).
- Member of the National Committee for Geodesy and Geophysics, Egyptian Academy of Scientific Research & Technology, Ministry of Scientific Research (2007 – 2010, 2019 – present).
- Member of the National Committee for Surveying and Mapping, Egyptian Ministry of Water Resources and Irrigation (<https://enc-water.mwri.gov.eg/enm/members/>) (2006 – present).
- Member of the International Association of Geodesy IAG (Member ID # 13).
- Member of the Egyptian Engineers Syndicate (Member ID # 1116/10).
- Chair, IAG Sub-Commission on gravity and geoid in Africa (2007 – present).
- Full Member of the IAG African Geoid Project (2001– 2007).
- Active Member of the New York Academy of Sciences (Member ID # 392105).
- Full Member of the IAG Special Study Group “Forward Gravity Field Modelling of Global Databases” (2003–2011).
- Full Member of the IAG North African Geoid Project (1999-2002).

- Full Member of the IAG Special Study Group “Evaluation of Static Gravity Models” (2003–2011).
- Full Member of the IAG Special Study Group “Dynamic Theories of Deformation and Gravity Field” (1999–2011).
- Full Member of the IAG Special Study Group SSG 3.167 “Regional Land and Marine Gravity Field Modelling” (1999–2003).

Languages

- Arabic (Mother Tongue)
- English (Fluent)
- German (Good)
- French (poor)

Study and Research Abroad (Projects supported by International Organisations)

- 2020: Visiting Professor, Karlsruhe Institute of Technology, Geodetic Institute, Karlsruhe, Germany.
- 2019: DAAD Visiting Professor, Karlsruhe Institute of Technology, Geodetic Institute, Karlsruhe, Germany.
- 2017: STDF/GE-SEED Visiting Professor, Karlsruhe Institute of Technology, Geodetic Institute, Karlsruhe, Germany.
- 2016: STDF/GE-SEED Visiting Professor, Karlsruhe Institute of Technology, Geodetic Institute, Karlsruhe, Germany.
- 2015: STDF/GE-SEED Visiting Professor, Karlsruhe Institute of Technology, Geodetic Institute, Karlsruhe, Germany.
- 2015: STDF/GESP Visiting Professor, Karlsruhe Institute of Technology, Geodetic Institute, Karlsruhe, Germany.
- 2014–2015: DAAD Visiting Professor, Karlsruhe Institute of Technology, Geodetic Institute, Karlsruhe, Germany.
- 2014: STDF/GESP Visiting Professor, Karlsruhe Institute of Technology, Geodetic Institute, Karlsruhe, Germany.
- 2013: STDF/GESP Visiting Professor, Karlsruhe Institute of Technology, Geodetic Institute, Karlsruhe, Germany.
- 2012: STDF/GESP Visiting Professor, Karlsruhe Institute of Technology, Geodetic Institute, Karlsruhe, Germany.
- 2011: DAAD Visiting Professor, Karlsruhe Institute of Technology, Geodetic Institute, Karlsruhe, Germany.
- 2010: Visiting Professor, Graz University of Technology, Institute of Navigation and Satellite Geodesy, Graz, Austria.
- 2008: DAAD Visiting Professor, University of Karlsruhe, Geodetic Institute, Karlsruhe, Germany.
- 2005: Tempus Visiting Professor, Graz University of Technology, Institute of Navigation and Satellite Geodesy, Graz, Austria.
- 2005: DAAD Visiting Professor, University of Karlsruhe, Geodetic Institute, Karlsruhe, Germany.

- 2002: Visiting Professor, Graz University of Technology, Institute of Theoretical Geodesy, Section of Physical Geodesy, Graz, Austria.
- 2001 – 2002: Guest Researcher, Austrian Academy of Science, Institute of Space Research, Section of Satellite Geodesy, Graz, Austria.
- 2000 – 2001: Arab Fund Research Fellow, Graz University of Technology, Institute of Theoretical Geodesy, Section of Physical Geodesy, Graz, Austria.
- 2000: DAAD Visiting Professor, Darmstadt University of Technology, Institute of Physical Geodesy, Darmstadt, Germany.
- 1997: ÖAD Researcher Fellow, Graz University of Technology, Institute of Theoretical Geodesy, Section of Physical Geodesy, Graz, Austria.
- 1988 – 1991: ÖAD Ph.D. Scholar, Graz University of Technology, Institute of Theoretical Geodesy, Section of Physical Geodesy, Graz, Austria (Supervisor: Prof. Dr. Helmut Moritz, the president of the International Union of Geodesy and Geophysics IUGG, 1991–1995; Honorary President of the International Association of Geodesy IAG).

Participation in International Conferences

1. The Arab Conference on Astronomy and Geophysics (ACAG-8), Cairo, Egypt, October 9–12, 2023.
2. 28th General Assembly of the International Union of Geodesy and Geophysics IUGG, Berlin, Germany, July 11–20, 2023.
3. General Assembly of the European Geosciences Union (EGU), Vienna, Austria, April 24 – 28, 2023.
4. Minia International Conference on Environment and Engineering MICEE2022, Hurghada, Egypt, July 14–17, 2022.
5. X Hotine-Marussi Symposium, Milan, Italy, June 12–17, 2022.
6. General Assembly of the European Geosciences Union (EGU), Vienna, Austria, May 23 – 27, 2022.
7. American Geophysical Union (AGU) Fall Meeting, New Orleans, USA, December 13–17, 2021.
8. Scientific Assembly of the International Association of Geodesy, Beijing, China, June 28 – July 2, 2021.
9. General Assembly of the European Geosciences Union (EGU), Vienna, Austria, April 19 – 30, 2021.
10. 27th General Assembly of the International Union of Geodesy and Geophysics IUGG, Montreal, Canada, July 8–18, 2019.
11. General Assembly of the European Geosciences Union (EGU), Vienna, Austria, April 7 – 12, 2019.
12. International Symposium on Gravity, Geoid and Height Systems 2 (GGHS2018), Copenhagen, Denmark, September 17–21, 2018.
13. General Assembly of the European Geosciences Union (EGU), Vienna, Austria, April 8 – 13, 2018.
14. Joint Scientific Assembly of the International Association of Geodesy (IAG) and International Association of Seismology and Physics of the Earth's Interior (IASPEI), Kobe, Japan, July 30 – August 4, 2017.
15. General Assembly of the European Geosciences Union (EGU), Vienna, Austria, April 23 – 28, 2017.

16. Research and Technology Development for Sustainable Water Management, Cairo, Egypt, December 4–6, 2016.
17. 1st Joint Commission 2 and IGFS Meeting, International Symposium on Gravity, Geoid and Height Systems 2016, Thessaloniki, Greece, September 19–23, 2016.
18. General Assembly of the European Geosciences Union (EGU), Vienna, Austria, April 17 – 22, 2016.
19. 26th General Assembly of the International Union of Geodesy and Geophysics IUGG, Prague, Czech Republic, June 22 – July 2, 2015.
20. General Assembly of the European Geosciences Union (EGU), Vienna, Austria, April 12 – 17, 2015.
21. 3rd International Gravity Field Service (IGFS) General Assembly, Shanghai, China, June 30 – July 6, 2014.
22. 25th International Federation of Surveyors FIG Congress, Kuala Lumpur, Malaysia, June 16–21, 2014.
23. General Assembly of the European Geosciences Union (EGU), Vienna, Austria, April 27 – May 2, 2014.
24. Scientific Assembly of the International Association of Geodesy, Potsdam, Germany, September 1–6, 2013.
25. VIII Hotine-Marussi Symposium, Rome, Italy, June 17-22, 2013.
26. General Assembly of the European Geosciences Union (EGU), Vienna, Austria, April 7–12, 2013.
27. 8th International Conference of Applied Geophysics, Cairo, Egypt, February 25–26, 2013.
28. The Arab Conference on Astronomy and Geophysics (ACAG-3), Cairo, Egypt, October 8–11, 2012.
29. General Assembly of the European Geosciences Union (EGU), Vienna, Austria, April 22–27, 2012.
30. 7th International Conference of Applied Geophysics, Cairo, Egypt, February 27, 2012.
31. 25th General Assembly of the International Union of Geodesy and Geophysics IUGG, Melbourne, Australia, June 28 – July 7, 2011.
32. General Assembly of the European Geosciences Union (EGU), Vienna, Austria April 3–8, 2011.
33. 26th Annual meeting of the Egyptian Geophysical Society, Cairo, Egypt, March 15, 2011.
34. 6th International Conference of Applied Petrophysics, Cairo, Egypt, February 28, 2011.
35. 2nd Arab Conference on Astronomy and Geophysics, Cairo, Egypt, October 25–28, 2010.
36. Geodetic Week, Cologne, Germany, October 5–7, 2010.
37. General Assembly of the European Geosciences Union (EGU), Vienna, Austria May 2–7, 2010.
38. 1st International Conference for a Unique Map of the Arab World, Beirut, Lebanon, June 29 – July 1, 2009.
39. General Assembly of the European Geosciences Union (EGU), Vienna, Austria April 19–24, 2009.
40. 1st Arab Conference on Astronomy and Geophysics “ACAG-1”, Cairo, Egypt, October 20–22, 2008.
41. General Assembly of the European Geosciences Union (EGU), Vienna, Austria April 13–18, 2008.
42. 24th General Assembly of the International Union of Geodesy and Geophysics IUGG, Perugia, Italy, July 2–13, 2007.

43. 1st International Symposium of the International Gravity Field Service (IGFS), Istanbul, Turkey, August 28 – September 1, 2006.
44. 22nd Annual Meeting of the Egyptian Geophysical Society, Cairo, Egypt, April 11–12, 2006.
45. Scientific Assembly of the International Association of Geodesy IAG, Dynamic Planet 2005, Cairns, Australia, August 22 – 26, 2005.
46. 3rd Minia International Conference in Advanced Trends in Engineering. Minia, Egypt, April 3–5, 2005.
47. IAG International Symposium on Gravity, Geoid and Space Missions “GGSM2004”, Porto, Portugal, August 30 – September 3, 2004.
48. 23rd General Assembly of the International Union of Geodesy and Geophysics IUGG, Sapporo, Japan, June 30 – July 11, 2003.
49. 3rd Meeting of the International Gravity and Geoid Commission, Thessaloniki, Greece, August 26–30, 2002.
50. V Hotine-Marussi Symposium on Mathematical Geodesy, Matera, Italy, June 17–21, 2002.
51. Scientific Assembly of the International Association of Geodesy IAG 2001, Budapest, Hungary, September 2–8, 2001.
52. IAG International Symposium on Gravity, Geoid and Geodynamics 2000 “GGG2000”, Banff, Canada, July 31 – August 4, 2000.
53. 22nd General Assembly of the International Union of Geodesy and Geophysics IUGG, Birmingham, UK, July 18–30, 1999.
54. 1st Minia International Conference in Advanced Trends in Engineering. Minia, Egypt, March 14–16, 1999.
55. Ninth International Symposium on Recent Crustal Movements (CRCM ‘98), Cairo, Egypt, November 14–19, 1998.
56. Second International Symposium “Geodynamics of the Alps-Adria Area by Means of Terrestrial and Satellite Methods”, Dubrovnik, Croatia, September 28 – October 2, 1998.
57. IV Hotine-Marussi Symposium on Mathematical Geodesy, Trento, Italy, September 14–17, 1998.
58. 2nd Joint Meeting of the International Gravity Commission (IGC) and the International Geoid Commission (IGeC), Trieste, Italy, September 7–12, 1998.
59. Second Continental Workshop on the Geoid in Europe, Budapest, Hungary, March 10–14, 1998.
60. Scientific Assembly of the International Association of Geodesy IAG97, Rio de Janeiro, Brazil, September 3–9, 1997.
61. International Summer School of Theoretical Geodesy, “Boundary Value Problems and the Modeling of the Earth's Gravity Field in View of the one Centimeter Geoid”, Como, Italy, May 26 – June 7, 1996.
62. 21st General Assembly of the International Union of Geodesy and Geophysics IUGG, Boulder, Colorado, USA, July 2–14, 1995.
63. Joint Meeting of the International Gravity Commission (IGC) and the International Commission on the Geoid (ICG), Graz, Austria, September 11–17, 1994.
64. III Hotine-Marussi Symposium on Mathematical Geodesy, L’Aquila, Italy, May 29, – June 3, 1994.
65. 7th International Symposium “Geodesy and Physics of the Earth”, Potsdam, Germany, October 5–10, 1992.

66. 20th General Assembly of the International Union of Geodesy and Geophysics IUGG, Vienna, Austria, August 11–24, 1991.
67. First International Symposium “Gravity Field Determination and GPS-Positioning in the Alps-Adria Area”, Dubrovnik and Hvar, Yugoslavia, October 2–7, 1989.
68. 5th Internationale Alpengravimetrie – Kolloquium, Graz, Austria, April 6–7, 1989.

Research Interests

- Isostasy
- Gravity field of the earth
- Geoid determination
- Inverse problems in geosciences
- Geodesy in Africa
- Satellite geodesy
- Temporal gravity variations
- Geometric and dynamic geodesy
- Geodesy with GNSS
- Water resources monitoring by satellite geodesy
- Engineering education

Dissertation Supervision

- Comparison of different gravity reduction techniques for geodetic applications in Egypt; Atef Makhloof, Minia University, 1997.
- Tailored High-Degree Geopotential Model for the Egyptian Gravity Field; Mostafa Abd-Elbaky, Minia University, 2011.
- Evaluation of GOCE geopotential models in Egypt; Ahmed Zaki, Cairo University, 2015.
- Towards Optimal Combination of Gravity Field Wavelengths in Geoid Determination for Egypt; Mostafa Ashry, Minia University, 2016.
- Applications of satellite geodesy in hydrology; Hussein Mohasseb, Minia University, 2017.
- Implementing Radial Basis Functions with Neural and Fuzzy Networks in Geoid Determination for Egypt; Mostafa Abd-Elaziz, Minia University.
- Geoid Determination for Egypt using Radial Basis Functions and Fast Fourier Transform Technique; Yousef Ayoub, Minia University.
- The effect of high electrical pressure on global satellite system observations; Ayman Hassan, Minia University.

Teaching Experience

- Plane and Topographic Surveying.
- Construction Surveying.
- Adjustment Computations.
- Theory of Errors.
- Geodetic Surveying.
- Geodetic Astronomy.

- Coordinate Systems and Map Projection.
- Applied Geodesy
- Geometric Geodesy.
- Physical Geodesy.
- Geophysics.
- Satellite Geodesy.
- Global Positioning System GPS.
- Geographic Information Systems GIS.
- Hydrographic Surveying.
- Seismology.

Organising International Conferences

- Member of the Scientific Committee, GGHS2024: Gravity, Geoid and Height Systems 2024, Thessaloniki, Greece, September 4–6, 2024 (<https://www.gghs2024.com/committees/>).
- Convenor of the G1.2 Session “Recent Developments in Geodetic Theory and Gravity Field Estimation” at the General Assembly of the European Geosciences Union (EGU2024), Vienna, Austria, April 14–19, 2024 (<https://meetingorganizer.copernicus.org/EGU24/session/49264>).
- Co-convenor, IAG Symposium G2 "Static Gravity Field and Height Systems" during the 28th General Assembly of the International Union of Geodesy and Geophysics IUGG, Berlin, Germany, July 11–20, 2023 (URL: <https://www.iugg2023berlin.org/906-2/>).
- Co-convenor of the G1.5 Session “Recent Developments in Geodetic Theory and Gravity Field Estimation” at the General Assembly of the European Geosciences Union (EGU2023), Vienna, Austria, April 23–28, 2023 (<https://meetingorganizer.copernicus.org/EGU23/session/46285>).
- Co-convenor, Session 3 “Local/Regional Gravity Field Modelling”, GGHS2022: Gravity Geoid and Height Systems 2022, Austin, USA, September 12–14, 2022 (<https://www.csr.utexas.edu/gghs2022/scientific-sessions/>).
- Co-convenor, Session XI-A “Theory of local gravity field modelling”, X Hotine-Marussi Symposium, Milan, Italy, June 12–17, 2022 (http://www.hotinemarussi2022.polimi.it/wp-content/uploads/2022/05/HM2022_scientific_program_v6.pdf).
- Co-convenor, Session G4.3 “Geoid determination, gravity and magnetic field data and their interpretation”, General Assembly, European Geosciences Union, Vienna, Austria, May 23–27, 2022 (<https://meetingorganizer.copernicus.org/EGU22/session/42840>).
- Co-convenor of the 2a.3 Session “Local and Regional Geoid and Gravity Modelling” at the Scientific Assembly of the International Association of Geodesy, Beijing, China, June 28 – July 2, 2021 (URL: https://www.iag2021.com/en/web/index/1646_140108_).
- Convenor of the G1.5 Session “Local/Regional Geoid Determination: Methods and Models” at the General Assembly of the European Geosciences Union, Vienna, Austria, April 19–30, 2021 (URL: <https://meetingorganizer.copernicus.org/EGU21/session/39915>)
- Organising the IAG Symposium G2 "Static Gravity Field and Height Systems" during the 27th General Assembly of the International Union of Geodesy and Geophysics IUGG, Montreal, Canada, July 8–19, 2019 (URL: <http://iugg2019montreal.com/g.html>).
- Organising Session 3 "Local/regional gravity field modelling" of the 2nd Joint Commission 2 and IGFS Meeting International Symposium on Gravity, Geoid and Height Systems 2018, Copenhagen, Denmark, September 17–21, 2018 (URL: <http://www.space.dtu.dk/english/gghs2018/sessions>).
- Organising the IAG Symposium IAG02 "Static Gravity Field" during the Joint Scientific Assembly of the International Association of Geodesy (IAG) and International

Association of Seismology and Physics of the Earth's Interior (IASPEI), Kobe, Japan, July 30 – August 4, 2017 (URL: http://www.iag-iaspei-2017.jp/iag_symposia.html).

- Organising Session 3 "Local/regional geoid determination methods and models" of the 1st Joint Commission 2 and IGFS Meeting International Symposium on Gravity, Geoid and Height Systems 2016, Thessaloniki, Greece, September 19–23, 2016 (URL: <http://gghs2016.com/conference/sessions/>).
- Organising G02 Symposium "Static Gravity Field Models and Observations" during the 26th General Assembly of the International Union of Geodesy and Geophysics IUGG, Prague, Czech Republic, June 22 – July 2, 2015 (URL: <http://iugg.org/archive/iugg2015prague/www.iugg2015prague.com/iag-symposia.html>).
- Organising Theme 2 "Gravity Field Determination and Applications" of the Scientific Assembly of the International Association of Geodesy, Potsdam, Germany, September 1-6, 2013 (URL: http://www.iag2013.org/IAG_2013/Themes.html).
- Organising the Session 4 "Advances in Precise Local and Regional High-Resolution Geoid Modelling" of the International Symposium "Gravity, Geoid and Height Systems GGHS2012", Venice, Italy, October 9–12, 2012 (URL: <http://www.gravityfield.org/conference/content/session-descriptions>).
- Organising the Union Symposium U11 "Earth and Space Science in Africa" during the 25th General Assembly of the International Union of Geodesy and Geophysics IUGG, Melbourne, Australia, June 28 – July 7, 2011 (URL: <http://iugg.org/archive/iugg2011/tourhosts.com.au/live/iugg2011/program-union.html>).
- Organising the 1st Minia International Conference in Advanced Trends in Engineering, Minia, Egypt, March 14–16, 1999 (URL: <http://www.msu.edu/~abdelrah/minia.htm>).

University Activities

- Member of the administrative board of the consultancy unit of Faculty of Engineering, Minia University (2004–2007).
- Member of the Faculty of Engineering board, Minia University (2002–2007; 2012–2013).
- Member of the Civil Engineering Department board, Faculty of Engineering, Minia University (1996 – present).
- Head, Civil Engineering Department, Faculty of Engineering, Minia University (2004–2007).
- Member of the Organisation Committee of the 1st Minia International Conference in Advanced Trends in Engineering, Minia, Egypt, March 14–16, 1999.
- Member of the Technical Committee of the 3rd Minia International Conference in Advanced Trends in Engineering, Minia, Egypt, April 3–5, 2005.
- Participating in updating the scientific courses for the undergraduate stage (B.Sc. level) for the Civil Engineering Department, Faculty of Engineering, Minia University.
- Participating in updating the scientific courses for the postgraduate stage for the Civil Engineering Department, Faculty of Engineering, Minia University.
- Supervising the postgraduate research activities for Surveying and Geodesy at the Civil Engineering Department, Faculty of Engineering, Minia University.

Miscellaneous

- Editor for the *Journal of International Association of Geodesy Symposia* since 2013.
- Reviewer for the *Journal of Geodesy* since 1995 (Journal of Geodesy is the official journal of the International Association of Geodesy).

- Reviewer for many international geodetic journals since 1995.
- Selected as one of the *2000 Outstanding Scientists of the 20th Century* (International Biographical Center, Cambridge).
- Selected several times, since 1995, in the *Marquis Who's Who* Biographical Data Publications, USA.
- Reviewer for many Scientific Organisations (e.g., STDF, ASTF, Egyptian General Directorate of Missions).

Educational Projects

- Tempus Individual Mobility Grant IMG-EG3081-2004, "Improving surveying and geodesy education in Minia University", supported by European Commission, July - September, 2005; Host: Graz University of Technology, Austria.
- Project manager, "Improving Transportation Engineering Education through Field Problems: Proof of Concept for Course Material Prototype", supported by the Higher Education Enhancement Project Fund (HEEPF), Egyptian Ministry of Higher Education, February 2005 – March 2007 (URL: <http://mu.minia.edu.eg/HEEPF/index.htm>).
- Project coordinator, Tempus project JEP-34039-2006, "Integration of Road Engineering IT-Technologies at Egyptian Universities", supported by European Commission, September 2007 – August 2009 (URL: <http://www.ireiteu.com/>).
- Project co-coordinator, Tempus project 530632-TEMPUS-1-2012-1-SE-TEMPUS-JPCR, "Joint Master Programme in Intelligent Transport Systems", supported by European Commission, September 2012 – August 2015.

National Research Projects

- Principal Investigator, "Improved African Geoid Model", supported by the Science and Technology Development Fund STDF in the framework of the German-Egyptian Scientific Projects, Egyptian Ministry of Scientific Research, 2015 – 2017.
- Principal Investigator, "Computation of Detailed Precise Geoid for Egypt", supported by the Science and Technology Development Fund STDF, Egyptian Ministry of Scientific Research, 2012 – 2015.
- Principal Investigator, "African Geoid - AFRgeoid", supported by the Science and Technology Development Fund STDF in the framework of the German-Egyptian Scientific Projects, Egyptian Ministry of Scientific Research, 2012 – 2015.

International Research Projects

- Principal Investigator, "Determination of the Earth's mathematical surface in Africa towards the realization of the International Height Reference System (IHRs)", supported by the International Union of Geodesy and Geophysics IUGG, 2016 – 2018.
- Principal Investigator, "Detailed Geoid Model for Africa", supported by the International Union of Geodesy and Geophysics IUGG, 2012 – 2014.
- Principal Investigator, "A Unified Height Reference System for Africa (AFRUHRS)", supported by the International Union of Geodesy and Geophysics IUGG, 2020 – 2022.

Books and Lecture Notes

Abd-Elmotaal, H. (1999) *Geometric Geodesy: An Introduction*. Lecture Note No. 1, Civil Engineering Department, Faculty of Engineering, Minia University.

Abd-Elmotaal, H. (1999) *An Introduction to Geodetic Astronomy*. Lecture Note No. 2, Civil Engineering Department, Faculty of Engineering, Minia University.

Published Researches

1. Abd-Elmotaal, H., Ashry, M. and Makhloof, A. (2024) Comparison of Different Approaches for Combining Gravity Field Wavelengths for Egypt. *Journal of Engineering Sciences*, Vol. 52 (1), 31–52. <https://doi.org/10.21608/JESAUN.2023.246329.1283>.
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Computer Programming Activities (selected items)

- Preparation of the necessary computer programs for the Least-Squares Adjustment of Al-Madina Al-Munawwarah Triangulation Network.
- Preparation of the necessary computer programs for ultra accurate harmonic analysis on the sphere and ellipsoid.
- Preparation of the necessary computer programs for modelling the long-period temporal variations of the earth's gravity field in the context of the GOCE satellite mission.
- Preparation of the necessary computer programs for all kinds of gravity reductions including the isostatic reductions (Pratt-Hayford, Airy-Heiskanen and Vening Meinesz), the Rudzki reduction and the Helmert condensation reduction.
- Preparation of the necessary computer programs for the covariance computation for quantities related to the earth's gravitational field using both the Tscherning-Rapp (1974) and the Moritz (1977) degree variance models.
- Preparation of the necessary computer programs for the detailed/accurate geoid determination.
- Preparation of the necessary computer programs for the inverse problems in isostasy using the Vening Meinesz isostatic model.
- Preparation of the necessary programs for a general surface representation designed for geodesy using the BITMAP structure.
- Preparation of the ABDLIB FORTRAN Graphics Library (in cooperation with Prof. Dr. Norbert Kühtreiber, Graz University of Technology, Institute of Theoretical Geodesy, Section of Physical Geodesy).
- Preparation of the LaTeX translator for the ABDLIB FORTRAN Graphics Library.
- Preparation of the Postscript translator for the ABDLIB FORTRAN Graphics Library.
- Preparation of a modifier program to transform a 2-D DXF SURFER file to 3-D DXF file.

Practical Experience (selected items)

- Participating in adjusting the triangulation network of Al-Madina Al-Munawwarah.
- Modelling the long-period temporal variations of the earth's gravity field in the context of the ESA GOCE satellite mission (ESA \equiv European Space Agency).
- Participating in measuring the deformation of the platform of Alexandria's port.
- Modelling the temporal variation of the gravity field in the context of the satellite mission GOCE.
- Setting out the main units in the Olympic village, Maadi, Cairo city.
- Participating in setting out the main control points of the first stage of the underground metro in Cairo city.
- Participating in surveying the already-existed infrastructures in South Sinai.
- Participating in the land division project of El-Saff city.
- Participating in the surveying work of the water-structures of El-Fayum city.
- Measuring the inclination of the high-elevated tower of Foodico food company in Ismailia city.
- Participating in the surveying work of the main garage of the public transportation company in Cairo city.
- Computing the geoid for different areas (e.g., Egypt, Austria, Africa, Slovenia, Croatia, Zagreb, Colorado, etc...).
- Setting out some buildings in the New Minia city.
- Participating in the necessary surveying work of El-Rehab city (New Cairo city).