MAHMOUD OSAMA GABALLAH

GEOMATICS LECTURE

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SUMMARY

Ph.D. holder in Applied Geomorphology and Academic Instructor with 9 years of combined experience bridging academic theory, research, and advanced industry applications. Proven track record of mentoring and upskilling over 6,000 students in Geographic Information Systems (GIS), Surveying, and Cartography. Expert in integrating GeoAI (Machine Learning), remote sensing, and spatial modeling to solve complex urban and environmental challenges. Delivered 14+ high-precision geospatial projects across the MENA region.

EDUCATION

Doctor of Philosophy (Ph.D.) in Geography (Applied Geomorphology)

Tanta University, Egypt | Aug 2020 – Nov 2023 | Grade: First Class Honors

Master of Arts (M.A.) in Geography

Tanta University, Egypt | Aug 2016 – Aug 2019 | Grade: Excellent

Bachelor of Arts in Geography (Survey, Maps and GIS Division)

Tanta University, Egypt | Sep 2011 – Jun 2015 | Grade: Good

ACADEMIC & TEACHING EXPERIENCE

Academic Instructor & Practical Supervisor (GIS & Surveying), Seasonal

Faculty of Arts, Tanta University, Egypt | Sep 2020 – Present

- Orchestrated practical training for large-scale academic cohorts, cumulatively mentoring over 6,000 future professionals.
- Supervised graduation capstone projects, guiding students through field data collection, spatial analysis, and technical report writing.
- Integrated cutting-edge Educational Technologies (EdTech) and AI tools to simplify complex geospatial concepts and improve student knowledge retention.

GIS Fundamentals Instructor

Public Service Center, Tanta University, Egypt | Oct 2021

- Led an intensive GIS fundamentals program for 30 students: coordinate systems, geodatabase architecture, symbology and cartographic design.
- Designed theoretical and practical course materials; evaluated student projects and mentored final map production

PUBLICATIONS & CONFERENCES

- Gaballah, M.O. (2024). The Anthropogenic Role in the Geomorphological Change of the Northern Lakes: A Study in Applied Geomorphology Using AI Techniques. Scientific Journal of the Faculty of Arts, Tanta University, Issue 54.
- Gaballah, M.O. (2024). Using SVM Technique for Monitoring and Assessing Man as a Geomorphological Agent on the Coastline of Lake Manzala, 1984–2024. Third International Scientific Conference, "The Future of Humanities in the New Republic" (published in proceedings).
- Invited Speaker, GIS Day 2022: "Spatial Artificial Intelligence (GeoAI) Applications," King Mariout Institutes.

PROFESSIONAL EXPERIENCE

GIS & Remote Sensing Specialist

Freelance | Nov 2020 – Present

- Delivered 14+ geospatial consultancy projects supporting urban planning, environmental sustainability and infrastructure development.

- Geodatabases: built enterprise geodatabases, including the New Administrative Capital Government District; led CAD-to-GIS migrations using topology rules, domains and subtypes to meet ministry "As-Built" standards.
- GeoAI & Remote Sensing: applied SVM machine learning to classify multi-temporal imagery and monitor geomorphological change (1984–2024), including Black Sand dune movement in Rashid.
- Environmental Modelling: produced wind-rose analyses and climatic atlases (Western Desert; Kafr El Sheikh and Aswan) and hydrological models of the Tigris and Euphrates basins.
- Urban & Infrastructure Mapping: digitised the Kafr El Sheikh electricity network and produced 60 thematic maps on educational services in Al-Madain District, Iraq.

Site Surveyor

Najran Company, Suez, Egypt | Dec 2017 – Dec 2018

- Coordinated daily field operations; performed construction staking and cut-and-fill volumetric calculations.
- Enforced quality control for structural levelling and exact alignment of concrete foundations

SELECTED PROJECTS

- Healthcare Accessibility Analysis, Tanta University Hospital (2025): network geodatabase and geometric network; 15–90 minute drive-time service areas and emergency routing.
- New Administrative Capital (2025): CAD-to-geodatabase migration, DEM, hydrology and 3D terrain modelling for the Government District.
- LULC Change Detection, Rashid (2023): supervised classification of Landsat 5 and 7 imagery and Black Sand dune mapping (1953–2021).
- Urban Sprawl Mapping, Hamoul District (2023): multi-temporal classification (1984–2021) and 20+ infrastructure and demographic maps.
- Water Quality Atlas, Rashid Nile Branch (2023): IDW spatial interpolation producing 47 thematic maps.
- Climatic & Environmental Atlas, Western Desert (2022): DEM derivatives, IDW interpolation and seasonal wind roses; 20+ maps.

SKILLS

- GIS: geodatabase design, CAD-to-GIS migration, topology and domains, network and hydrological analysis, 3D terrain modelling, suitability analysis, data quality control.
- Remote Sensing & GeoAI: machine learning (SVM), supervised and unsupervised classification, LULC and change detection, Google Earth Engine, spectral indices.
- Surveying & Cartography: DEM/DTM/TIN generation, construction staking, cut-and-fill calculations, total station and GNSS/GPS, coordinate systems and projections, thematic mapping and atlases.
- Teaching & Research: curriculum development, capstone supervision, backward design, assessment and rubric design, project-based and inquiry-based learning, EdTech integration, SPSS, research methodology, academic writing.
- Software: ArcGIS Pro, ArcGIS Online, QGIS, Google Earth Engine, ERDAS IMAGINE, ENVI, AutoCAD, Civil 3D, Surfer, SPSS, Adobe Photoshop and Illustrator, Google Classroom, Padlet, Canva.

COURSES & CERTIFICATIONS

- Introduction to AI in ArcGIS, Esri (2025)
- The 1000 Impactful Teachers Initiative, 40-hour training, Educareers (2025)
- Managing Data Quality Using ArcGIS Data Reviewer, Esri (2024)
- Deep Learning Using ArcGIS Pro, Esri (2022)
- ArcGIS 3D Analyst and 3D visualization series, 7 courses, Esri (2023)
- Connecting Citizen Science with Remote Sensing, NASA (2023)
- Introduction to Python, DataCamp (2022)
- Imagery, Automation, and Applications (27 h), UC Davis via Coursera (2020)
- Fundamentals of GIS; GIS Data Formats, Design and Quality; Geospatial and Environmental Analysis, UC Davis via Coursera (2017)

LANGUAGES & MEMBERSHIPS

- Arabic: native
- English: B1
- Member, Egyptian Geographical Society