

## CURRICULUM VITAE

### PERSONAL INFORMATION

#### Dr.Eng. Remon Isaac Abdelmalak

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**Date and Place of Birth:** 24<sup>th</sup> July 1972, El-Minia, Egypt  
**Citizenship:** Egyptian  
**Marital Status:** Married  
**Number of Children:** Two

### PROFESSIONAL INTERESTS:

- Soil Mechanics
- Foundation Engineering
- Forensic Engineering
- In situ Testing and Field Monitoring
- Problematic soils (expansive, collapsible, soft soils,...etc)
- Unsaturated Soil Mechanics (Shrink-Swell clays...)
- Structural Mechanics
- Deep Excavations and Retaining Structures
- Risk Analysis and Probabilistic Design

### SELECTED PROFESSIONAL QUALIFICATIONS

- Problem solving skills cover:
  - ✓ The development of a new design procedure for slab-on-grade foundations on shrink-swell soils.
  - ✓ Forensic studies and field monitoring through working in the Historical Conservation Project "Cliff Erosion at La Pointe Du Hoc", Normandy, France, which incorporated the supervision of geotechnical site investigation for a WWII invaluable historical site as well as investigating the cliff retreat phenomena and the consequences on invaluable WWII historical mark.
- Overall experience of nearly 20 years in civil and geotechnical engineering covering a wide range of projects that include:
  - ✓ The geotechnical design, supervision, and/or review of: The Kingdom Tower (the tallest building in the world- 1001m height), Neo Orleans' hurricane protection projects (cofferdams, levees, dikes, closure dam), refineries, power substations, pump stations, retaining structures, tank foundations, shallow foundations, and deep foundations.

- ✓ And, the structural design of: residential, commercial, schools, villas, office buildings, stadiums and hospitals.
- Numerical modeling: Frequent user of finite element software packages, including ABAQUS and PLAXIS, and proficient in the use of various software packages such as GGU, STAAD, SAP, SAFE, LPILE, SLOPE/W, SEEP/W, SLIDE, SHAKE, PTI Slab, Visual Mod Flow, AutoCAD, MATLAB, VBA, and others.
- Excellent skills in technical report writing, teaching, preparing presentations and coordinating project activities.

## EDUCATION

### **Doctor of Philosophy (Ph.D.)**

Geotechnical Engineering

December 2007

*Texas A&M University, College Station, TX*

**GPA: 4.00/4.00**

**Dissertation:** "Soil Structure Interaction for Shrink-Swell Soils: A New Design Procedure for Foundation Slabs on Shrink-Swell Soils"

### **Master of Science (M.Sc.)**

Geotechnical Engineering

*El-Minia University, El-Minia, Egypt*

May 2000

**Thesis:** "A Practical Approach to Assess Lateral Swelling Behavior of Expansive Soils"

### **Bachelor of Science (B.Sc.)**

Civil Engineering

*El-Minia University, El-Minia, Egypt*

June 1994

**General Grade:** *Very Good* (with honors), Ranked 1/50

**Graduation Project Grade:** *Distinction*

## PROFESSIONAL LICENSES:

- Egyptian Engineering Syndicate: Certified Consultant Engineer in the field of Geotechnical Engineering. Consultant Engineer Registration No. 6182/1. Granted 24 August 2011.
- Egyptian Engineering Syndicate: Engineering Registration Record No. 3338/5. Granted February 2014.
- Egyptian Engineering Syndicate: Membership Registration No. 1441/19, Civil Engineering Branch. Granted July 1994.

## PROFESSIONAL EXPERIENCE

### Senior Geotechnical Engineer, Dar Al-Handasah (Part-time)

Sept. 2009- Present

*Dar Al-Handasah., Cairo, Egypt*

Served as a Senior Project Engineer in the Geotechnical & Heavy Civil Engineering Department: writing proposals, performing engineering analyses, geotechnical designing and reviewing, developing engineering recommendations and writing technical reports for assigned projects.

Provided services on a variety of geotechnical projects in Africa and the Middle East with emphasize on designing of deep excavation side support systems, land reclamation, ground improvements, and designing of shallow and deep foundations. Selected recent project experience includes:

- ***The Kingdom Tower (the tallest building in the world- 1001m height)***, Jeddah, Saudi Arabia. The master plan of Kingdom Tower will be 1,001 meters tall and will have three wings. The tower will include residential and commercial units, a five-star hotel, serviced apartments, retail shops, a communications center and an observation deck. The tower will be surrounded by a multi-level podium structure encompassing three floors of parking, three separate lobbies, a spa, a ballroom, and hotel space. The height to width aspect ratio of approximately 11 at the tower base. The foundation system for the Kingdom Tower is a system of 270 cast-in-place pile foundations connected to a continuous concrete raft covering the entire pile field. The multi-level podium structure is founded on shallow foundations. As a senior geotechnical project engineer, I've helped in design review and field supervision efforts by reviewing geotechnical design and construction documents, providing geotechnical technical support to the site team, and by analyzing the pile loading and integrity testing for the project.
- ***Sheikh Jaber Al Ahmed Al Sabah Causeway Project, Kuwait*** – Main Link across the Kuwait Bay, represents an integral part of Kuwait State Ministry of Public Works Master Plan. The proposed 36 km causeway will link Kuwait City –to the south- with a planned New Town Development in Subiyah –to the North. The causeway will be a combination of low-level bridges, embankments and two reclaimed transition islands. Causeway piers are founded on cast-in-place pile foundations. Embankments and bay islands will have ground improvements. As a project engineer, I'm helping in design audit and field supervision efforts by reviewing geotechnical design and construction documents and providing geotechnical technical support to the site team.
- ***King Abdul Aziz International Airport, Saudi Arabia.*** Project management, design review (according to LEED requirements), construction management and supervision for a new airport based on a new phased master plan up to the year 2035 (Phase 1 up to 2012), comprising a new passenger terminal complex with a capacity of 30 million passengers per annum to replace the existing North and South Terminals; facility design to cater for both domestic

and international operations, A380 aircrafts and full hub capability with latest systems and equipment; integrated provision for a planned railway; airfield upgrading, new parallel taxiways, control tower and related systems; state-of-the-art navigation aid and communication installations; support buildings and facilities, complete landscaping, major utility networks, new landside roads and interchanges; program coordination for related projects, including fuel tank farm, desalination plant, upgrading of existing terminals, sewage treatment plant; and planning and infrastructure for a major landside commercial zone, complementing the main development. Project Engineer helping in project construction management efforts by reviewing construction documents and available project geotechnical reports for the proposed project.

- **Netzo - Soyo Highway, Angola.** Topographic survey, preliminary and detailed designs, tender documents and supervision of construction for a 150 km 2-lane dual carriageway with 2.5 m outer shoulder, 1 m inner shoulder and 17.5 m median in addition to several local links connecting the existing village with the main highway, and 9 bridges, of which the 'M' bridge that consists of 2 separate carriageways each possessing a width of 15 m and eight 50 m spans. Works covered geotechnical assessment, storm-water drainage and road safety features (traffic signs, road marking, etc).
- **Soyo - Congo - Cabinda Link Viaducts and Accesses, Angola.** Traffic and rail studies, concept design and tender documents for 27.6 km of approach viaducts for the main bridge over the Congo River, Soyo - Cabinda roadway (134.5 km) and railway line (134.5 km), roadway upgrading between Boma and Muanda (in the Democratic Republic of Congo) with a total length of 55 km, interchanges, drainage and protection works, and toll and border point facilities.

#### **Assistant Professor (Full-Time)**

Oct. 2008- present

*El-Minia University, El-Minia, Egypt.*

Served as an assistant Professor in Civil Engineering Department: Teaching several foundation design, soil mechanics, and statistics undergraduate and graduate courses, writing research proposals, geotechnical designing and reviewing for assigned projects from El-Minia University Engineering Consulting Unit.

- **Teaching:** Foundation Design, Soil Mechanics, and Statistics.

#### **Senior Geotechnical Engineer, Analysis & Design - Hamza Associates (Part-time)**

Nov. 2008-Aug. 2009

*Hamza Associates., Cairo, Egypt*

Served as a Senior Geotechnical Engineer writing proposals performing engineering analyses, geotechnical designing, developing engineering recommendations and writing technical reports for assigned projects.

Provided services on a variety of geotechnical projects in Egypt and the Middle East with emphasize on designing of deep excavation side support systems and designing of groundwater control systems. Recent selected project experience includes:

- ***New Cairo Intake Pumping Station, Cairo, Egypt*** - Project Senior Geotechnical Engineer helping in the designing of side support and groundwater control systems, and completing analysis and report for the project.
- ***Kuwait shipyard dry dock, Kuwait*** - Project Senior Geotechnical Engineer responsible for designing of the piled raft system and designing of the groundwater control systems, and completing analysis and report for the project.
- ***Review of dewatering systems design reports, Egypt***- Senior Geotechnical Engineer responsible for design reviewing of numerous dewatering system design reports presented from contractors to General Authority for Drinking Water and Sanitation

**Project Professional - Fugro Consultants, Inc. (Full-Time)**

Aug. 2007- Oct. 2008

*Fugro Consultants, Inc., Houston, TX*

Served as a Project Engineer writing proposals and performing the bulk of the duties for a variety of geotechnical engineering projects. My responsibilities included coordinating field exploration activities, assigning laboratory tests, performing engineering analyses, developing engineering recommendations, and preparing technical reports for assigned projects.

Provided services on a variety of onshore and near-shore geotechnical projects along the Texas Gulf Coast. In addition, experience with projects in other domestic and international locations including, but not limited to, Louisiana, California, Saudi Arabia, Algeria and Kuwait. Selected recent project experience includes:

- ***Yanbu Export Refinery Project, Yanbu, Saudi Arabia*** - Project Professional responsible for coordinating field work, and completing analysis and report for the proposed project.
- ***New Orleans' hurricane protection projects, Louisiana, USA***, - Project Professional in a team responsible for completing analysis and report for several projects such as: fronting protection at Belle Chase Pump Station, Mississippi River Gulf Outlet Closure (Rock dike), and Lake Pontchartrain and vicinity hurricane protection (Jefferson Lakefront Levee).
- ***Gulf LNG Clean Energy Project, Pascagoula, Mississippi, USA*** – Project Professional providing geotechnical services for this project, which included evaluation of nonlinear soil resistance and displacement characteristics of

each major soil layer in the vertical and lateral direction and dynamic foundation design.

- ***Faustina Hydrogen Products Geotechnical Study Project, US Transcarbon, LLC Donaldsonville, Louisiana, USA-*** Project Professional providing geotechnical services for this project, which include geotechnical recommendations for preliminary design of foundations, and pavements for the proposed chemical facility.
- Worked on numerous projects providing geotechnical services such as conducting field exploration, sampling, inspection, analysis, and technical support under supervision.

#### **Graduate Assistant- Research / Visiting PhD Researcher**

Aug 2002. – Aug. 2007

*Texas A&M University, College Station, TX*

##### ***Dissertation research project: Shallow foundations on shrink swell soils***

- Analyzed and evaluated all available well-known design methods for shallow foundations on shrink swell soils.
- Developed new design procedures for foundation slabs on shrink-swell soils that:
  - handles this complicated weather-soil-structure interaction problem in a very practical way,
  - satisfies designers' aspiration of having a realistic reliable unsophisticated design procedures, &
  - optimizes the choosing of necessary foundation slab stiffness on these soils.
- Supervised soil boring processes for office building tennis court monitoring projects.
- Monitored shallow foundation slabs movements on shrink-swell soils for a tennis court and an office building.
- Designed, built, and ran two large-scale laboratory testing models to study the shrink-swell behavior of unsaturated soils.
- Developed new laboratory test to determine the coefficient of diffusivity for unsaturated soils.
- Carried out soil identification tests and many unsaturated soils tests for numerous soil samples.
- Carried out advanced numerical modeling for weather-soil-structure problems taking into account the influence of soil crack networks on the moisture diffusion in unsaturated soils.

##### ***Normandy cliff erosion research project; La Pointe Du Hoc, Normandy, France.***

- Prepared considerable portion (literature reviewing, calculating, analyzing, and writing) of "Cliff Erosion at La Pointe Du Hoc, Geotechnical Testing,

Failure Mode Analysis, And Remedial Measures” report under the supervision of Prof. J-L Briaud.

- Supervised rock drilling and boring processes.
- Participated in site reconnaissance, field observation, and data collection.
- Carried out soil and rock erosion tests using EFA machine.
- Carried out indirect splitting tensile strength tests for rock.

#### ***Shrink-swell soils short courses***

- Participated (lectured, organized, and prepared course brochure and materials) in a two day shrink-swell soils short course, 2005 though 2007.
- Presented "Suction measurements" and " Shallow foundations".
- Attendees of these courses were mainly a diverse group of practitioners and consulting engineers.

#### **Lecturer Assistant (Full-Time)**

May 1995- Aug. 2004

*Civil Engineering Department, El-Minia University, El-Minia, Egypt.*

- Assisted in teaching: Foundation Design, Steel Bridges, Soil Mechanics, Hydraulics, Fluid Mechanics, Theory of Structures, and Design of Irrigation Networks.
- M.Sc. Thesis:  
Designed, built, and ran a small scale laboratory testing model to determine the swelling pressure and potential of partially confined expansive soils.

#### **Structural and Geotechnical Designer (Part-time)**

Oct. 1996 – Jul. 2001

*ECO “Engineering Consulting Office”, El-Minia, Egypt*

- Structural and Geotechnical design of: Residential, Commercial, Schools, Villas, Office buildings, Stadiums and Hospitals.
- Participated in consultation projects: medium to large scale projects including: Students dormitory buildings, residential buildings, administration buildings, students’ central restaurants, stages, playgrounds, lecture halls, El-Minia University Central Library, dentistry Hospital, and El-Minia University Stadium.
- Designed and supervised the remediation and construction work for St. Anthony Church (1000 worshiper capacity), El-Minia, Egypt, (2002).

#### **HONORS AND AWARDS**

- **2010:** keynote lecture (co-author) of the 5<sup>th</sup> International Conference for Unsaturated Soils, “Design of Stiffened Slab-on-Grade on Shrink-Swell Soils”, Barcelona, Spain, September, 2010

- **2012:** Keynote Lecture (co-author), the Third Young African Geotechnical Engineering Conference, “Unsaturated soils for practicing engineers”, November 2012, Cairo, Egypt.
- **2012:** Keynote Lecture (co-author), Baltic Piling Days 2012, “Unsaturated soils for practicing engineers”, August 2012, Tallinn, Estonia.
- **2011:** Keynote Lecture (co-author), European Young Geotechnical Engineers Conference, “Unsaturated Soil Behavior for Practicing Engineers”, Rotterdam, Netherlands. 4-6 September, 2011
- **2011:** Keynote Lecture (co-author), Met with Geotechnical Engineers, “Unsaturated Soil behavior for the Practicing Engineer”, Zurich, Switzerland, 12-13 May, 2011
- **2011:** Keynote Lecture (co-author), 17<sup>th</sup> Széchy Memorial Session, “Unsaturated Soil Behavior and the Practicing Engineer”, Budapest, Hungary, 10-12 February, 2011
- **2011:** Keynote Lecture (co-author), Peru International Seminar, “Unsaturated Soils: Some Fundamentals and Some Application”, Lima Peru, 5-7 January, 2011
- **2010:** Keynote Lecture (co-author), 4<sup>th</sup> International Conference on Geotechnical Engineering & Soil Mechanics, “Unsaturated Soil Behavior and the Practicing Engineer”, Tehran, Iran (Sharif Univ.), 2-3. November, 2010.
- **2007:** Ph.D. Graduation honor (GPA 4.0/4.0): PHD in Civil Engineering (Texas A&M University, College Station, USA)
- **2002:** Session co-chair, First International Conference On Scour of Foundations, ICSF-1, Texas A&M University, College Station, Texas, USA, November 17-20, 2002
- **1994:** B.Sc. Graduation honor (Very Good-Accumulative): B.Sc. in Civil Engineering (El-Minia University, El-Minia, Egypt)

#### **RELEVANT COMPUTER SKILLS**

- Frequent user of finite element software packages such as ABAQUS and PLAXIS
- Proficient in use of computer software packages such as:
  - Microsoft office and sound Editing Programs Like Sound forge and Cool Edit Pro.
  - CAD and engineering programs like: STAAD, SAP, SAFE, LPILE, SLOPE/W, SEEP/W, SLIDE, SHAKE, PTI Slab, Visual Mod Flow, and AutoCAD, and many graphing programs.



- Frequent programmer with MATLAB, VBA, and FORTRAN.

#### **PROFESSIONAL DEVELOPMENT TRAINING**

- Attended and completed a 16-PDH's advanced short course on "PLAXIS Computational Geotechnics: Soil Modeling", given by PLAXIS, Held at DAR AL-HANDASAH, Cairo, Egypt, April 18-19, 2011.
- Attended and completed a 8-PDH's short course on "Design and Repair Guidelines for Shallow Residential Foundations on Expansive Clay Soils", organized by the Geo-Institute of ASCE Shallow Foundation Committee Members, held at the occasion of the Annual Congress of the Geo-Institute at the Adams Mark Hotel in Denver, Colorado, USA, on February 18, 2007
- Attended and completed a 8-PDH's DFI Drilled Shaft Specialty Seminar on "Drilled Shafts: Constructability and Its Effect on Capacity", Sponsored by the Drilled Shaft Committee, held at Marriot Houston, TX, USA, on April 19-20, 2007
- Attended and completed a 30-PDH's short course on "Rock Mechanics and Rock Engineering", Sponsored by the American Rock Mechanics Association (ARMA), Held in Emeryville, California, USA, September 18-21, 2006
- Attended and completed a 8-PDH's short course on "New Developments in Geotechnical and Structural Designs of Residential Foundations", Texas Section ASCE, Austin, Texas, USA, April 7, 2005

#### **SELECTED PUBLICATIONS**

- Seed R.B., Bea R.G., Abdemalak R.I., Athanasopoulos-Zekkos A., G. P. Boutwell G.P., Briaud J.-L., Cheung C., Cobos-Roa D., Ehrensing L., Govindasamy A.V., Harder. F. JR., Inkabi K.S., Nicks J., Pestana J.M., Porter J., Rhee K., Riemer M.F., Rogers, J.D., Storesund R., Vera-Grunauer X., J. E. Wartman J.E., 2008, "New Orleans & Hurricane Katrina: Introduction, Overview, and the East Flank", Vol. 134, No. 5, May 2008, *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, Reston, Virginia, USA.
- Briaud J-L, Abdelmalak R., and Zhang X. "Design of Stiffened Slab-on-Grade on Shrink-Swell Soils," Proceedings, keynote lecture of the 5<sup>th</sup> International Conference for Unsaturated Soils, Barcelona, Spain, September, 2010.
- Abdelmalak R., Briaud J-L "Design of Stiffened Slab-on-Grade on Shrink-Swell Soils," Proceedings, Texas section- American society of civil engineering, fall meeting, Dallas, Texas, October 1-4, 2008
- Abdelmalak R., Briaud J-L "Influence of the 2002 Texas section of ASCE recommended practice on the Beam Depths for Stiffened Slabs on Shrink-Swell Soils Using BRAB and WRI," Proceedings of Geo Congress 2007, Denver, Colorado, February, 2007.

- Abdelmalak R., Briaud J-L "Comparison of Beam Depths for Stiffened Slabs on Shrink- Swell Soils Using WRI, PTI 2004 and AS 2870," Proceedings, 4<sup>th</sup> International Conference for Unsaturated Soils, Carefree, Arizona, April, 2006.
- Abdelmalak R., Zhang X., Briaud J-L, Bracci J., "Slab on Grade for Shrink-Swell Soils Review of Design Methods," Proceedings, Texas section- American society of civil engineering, spring meeting, Austin , Texas, April 6-9, 2005, p. 15
- Hassona, F.A., Hassan, M.A., Abu-Baker, A.M. and Abdelmalak, R. I. "Effect of Sand Piles on Totally and Partially Confined Swelling Parameters of Clay" International Conference on Soil Improvement, Kuala lumpur, Malaysia 26-28 Mar. 2002.

#### **MEMBERSHIPS**

- Sub-committee member for the development of the Egyptian Code for Soil Mechanics and Foundation Execution (Deep Excavation Sub-Committee), since 2011.
- Sub-committee member for the development of the Egyptian Code for Soil Mechanics and Foundation Execution (Site Investigation Sub-Committee), since 2011.
- American Society of Civil Engineers (ASCE membership), since 2002.
- American Society of Civil Engineers Geo-Institute Shallow Foundation Committee, since 2007.
- American Rock Mechanics Association (ARMA), since 2006.
- Egyptian Engineers Syndicate, since 1994.