MOHAMMED SAKR, Ph, P. Eng.

EDUCATION

- **Ph.D.**, Geotechnical Engineering, University of Western Ontario, London, Ontario, Canada, (Dec 2003)
  Thesis Title: *Construction and Performance of FRP-Concrete Composite Piles*

- **Master of Engineering Science**, Geotechnical Engineering, University of Western Ontario, London, Ontario, Canada, (December 1999)
  Thesis Title: *Centrifuge Modeling of Tapered Piles in Sand*

- **Bachelor of Engineering Science**, Civil Engineering, Alexandria University, Alexandria, Egypt, (June 1992)

PROFESSIONAL AFFILIATIONS

- Registered Professional Engineer in Ontario, British Columbia, Manitoba and Alberta
- Deep Foundation Institute (DFI)
- American Society of Civil Engineers
- Canadian Society for Civil Engineering
- Edmonton Society of Geotechnical Engineers
- Canadian Geotechnical Society
- Egyptian Engineers Syndicate

INDUSTRIAL EXPERIENCE

Geotechnical Core Service Manager, Worley Parsons., Edmonton, Alberta, Canada (Feb 2011 – present)

Senior Geotechnical Manager, Almita Manufacturing Ltd., Edmonton, Alberta, Canada (March 2009 – Jan 2011)

- Played a key role in growing the company and opening new markets
- Led the research and development department at the company.
- Provided senior mentorship for junior/intermediate geotechnical and civil engineers
- Managed delivery of screw pile projects for several projects such as:
  - ConcoPhilips Surmont 2 Project - Central Plant Facility and wide Field Facilities
  - Imperial Oil Kearl Lake 240 kV Transmission Line, north of Fort McKay, Alberta
  - Enbridge Power Stations in Alberta (Hardisty), Manitoba (Gretna, Glenavon, Glenboro) and Saskatchewan (Milden, Kerrobert, Craik, Rowat)
  - Aroura Transmission Line at Syncrude north of Fort McMurray, Alberta
  - Albian Sand Power Transmission Line north of Fort MaKay, Alberta
  - Suncor 260 kV Power Transmission Line
  - CreeBurn Camp, north of Fort McMurrray, Alberta
- Assisted Imperial Oil in developing specifications for fabrication, design and installations for helical piles.
- Carried out a series of presentations and short courses to educate the engineering community about the development and recent advancement of design and use of screw piles

Lead Geotechnical Engineer, Almita Manufacturing Ltd., Edmonton, Alberta, Canada (Feb 2007 - March 2009)

- Managed geotechnical investigations/projects and wrote geotechnical reports for various facilities, structures and developments;
- Designed screw piles for a variety of telecommunication towers, power transmission lines, substations, industrial facilities, oil facilities, residential camps and houses.
- Solved installation problems and assured that installation and pile performance met design criteria

Project Engineer, Thurber Engineering Ltd., Edmonton, Alberta, Canada (March 2004 – Feb 2007)

- Performed geotechnical design for several oil facilities and industrial plants.
- Assessed landslides for several sites and analyzed stability of slopes using Geoslope Office.
- Designed geogrid reinforced slopes for several projects
- Performed risk assessment for several sites for Alberta transportation
- Designed several bridge sites and highways
- Estimated the dynamic response of machine foundations for several projects for CNRL
- Prepared a variety of geotechnical reports and foundation recommendations
- Managed geotechnical Investigations for Tank farms such as Keyspan Energy of Edmonton
- Estimated deep foundations performance including evaluating their lateral deflection using Lpile

Construction Director, AL-Sagri Group, Riyadh, Saudi Arabia (January 1994 – September 1996)

- Managed and coordinated design and construction of several residential and industrial facilities such as paper production factory, mosque extension in Riyadh, Saudi Arabia
- Ensured construction plans and specifications met building code and municipalities requirements
- Prepared schedules and conducted cost analyses
- Represented company at standard organizations and professional associations (you mentioned in your cover letter pulp and paper and other projects not listed here, which make it questionable)

Structural Design Engineer, Consulting Centre, Tanta University, Egypt (July 1992 – December 1993)

- Designed several multi-storey buildings including structural design, construction details and foundation design
  - Involved in planning and coordinating structural design of National Tanta University Hospital (1000 beds on 37800 m^2
- Reviewed designs, calculations and cost estimates of construction projects
- Monitored construction work schedules
- Conducted technical analysis of structural projects and compiled soil mechanics investigations
- Investigated deterioration problems of high-rise buildings and developed an efficient rehabilitation system

RESEARCH EXPERIENCE

Research and Development Director, Almita Manufacturing Ltd., Edmonton, Alberta, Canada (Feb. 2007 – Jan 2011)

- Developed short- and long-term research objectives and plans and managed their execution on time
- Prepared research proposals and industrial grant applications for NSERC and IRAP
- Co-supervised PhD students to investigate the performance of helical piles subjected to dynamic loads and investigating the performance of helical piles in warm permafrost

- Developed a software for the design of screw piles in sand and clay and for estimating their axial compression, uplift and lateral capacities
- Managed large pile load test projects in several provinces in Canada, including Manitoba, Saskatchewan, Ontario and Alberta, including:
  - Imperial Oil Kearl 240 kV Transmission Line, north of Fort McKay, Alberta
  - Arnprior Solar Farm Pile Load Testing Program, Ontario
  - Imperial Oil Kearl Lake Helical Pile Load Testing Program
  - Enbridge Pile Load testing Program (Gretna, Milden and Glenavon)
  - Alberco Conforce Stressing Bed Project
- Managed field testing of screw piles for several projects such as Cree Burn Camp, Harditsy, Daven Jackfish site, and Alaska pile load tests
- Led extensive research in deep foundation systems to improve the performance of deep foundations and to provide alterative foundation options
- Presented the results of the research in several conferences and short courses.

PUBLICATIONS

Articles Published

Sakr, M. (2010) "Installation and Performance Characteristics of High Capacity Helical Piles in Cohessionless Soils", *Deep Foundation Journal (DFI)*. Accepted for Publication.

Sakr, M. (2009) "Lateral Performance of Two-Section Helical Piles in Soft Soils", Deep Foundation Institute (DFI) Journal. Vol 3, No. 2, November 2009, pp. 37-48.

Sakr, M. (2009) "Axial and Lateral Behaviour of Helical Piles in Oil Sand", *Canadian Geotechnical Journal*. Vol. 46, No. 9, pp. 1046-1061.

Nehdi, M., Sakr, M.and El Naggar, M-H. (2008) "Toe-Driven Tapered FRP-SCC Composite Piles: New High-Performance Technology for Deep Foundations", Geotechnical Testing Journal, ASTM, Volume 31, No. 3.

Sakr, M., El Nagger, M.H., and Nehdi, M. (2007) "Wave Equation Analyses of Tapered FRP-Concrete Piles in Dense Sand". *Soil Dynamics and Earthquake Engineering Journal*, Volume 27, No. 2, pp. 166 - 182.

Nehdi, M., Sakr, M., and El Naggar, M.H. (2006) "From Head to Toe: FRP-SCC Composite Piles Offer New Direction for Deep Foundations". *Concrete International*, American Concrete Institute, Vol. 28, No. 6, pp. 43-47.

Sakr, M., El Nagger, M.H., and Nehdi, M. (2005) "Interface Characteristics and Constructability of Novel FRP/Concrete Hybrid Piles". *ASCE, Journal of Composites for Construction*, Volume 9, No. 3, pp. 274-283.

Sakr, M., El Naggar, M.H., and Nehdi, M. (2005) "Lateral Behaviour of FRP-SCC Composite Tapered Piles in Dense Sand". *Journal of Geotechnical Engineering*, Institution of Civil Engineers, London, Vol. 158, No. GE3, 145-157.

Sakr, M., El Naggar, M.H., and Nehdi, M. (2005) "Uplift Performance of FRP Tapered Piles in Dense Sand". *IJPMG-International Journal of Physical Modeling in Geotechnics.* Vol. 5, No. 2 (June 2005, pp.1-16.

Sakr, M., El Nagger, M.H., and Nehdi, M. (2004) "Toe Driving Technique for Pipe Piles Installation and Performance of FRP Pile Segments". *Canadian Geotechnical Journal*. Vol. 41, No. 2, pp. 313-325.

Sakr, M., El Naggar, M.H., and Nehdi, M. (2004) "Load Transfer of Fibre-Reinforced Polymer (FRP) Composite Tapered Piles in Dense Sand". *Canadian Geotechnical Journal*. Vol. 41, No. 1, pp. 70-88.

Sakr, M., and El Naggar, M.H. (2003) "Centrifuge Modeling of Tapered Piles in Sand". *Geotechnical Testing Journal*, ASTM, Vol. 26, No. 1, pp. 22-35.

El Naggar, M.H., and Sakr, M. (2002) "Cyclic Response of Axially Loaded Tapered Piles". *IJPMG-International Journal of Physical Modeling in Geotechnics*, Vol. 2, No. 4, pp.1-12.

El Naggar, M.H., and Sakr, M. (2000) "Evaluation of Axial Performance of Tapered Piles from Centrifuge Tests". *Canadian Geotechnical Journal*. Vol. 37, No. 6, pp. 1295-1308.

Other Refereed Contributions

Sakr, M. (2010) "Lateral Resistance of High Capacity Helical Piles – Case Study", 63rd Canadian geotechnical and 6th Canadian Permafrost Conference, Calgary, Alberta, September 12 – 16, 2010, pp. 402 -412.

Elkasabgy, M., El Nagger, M.H. and Sakr, M. (2010) "Full-Scale Vertical and Horizontal Dynamic Testing of a Double Helix Screw Pile", 63rd Canadian geotechnical and 6th Canadian Permafrost Conference, Calgary, Alberta, September 12 – 16, 2010, pp. 352 - 359.

Sakr, M. (2010) "High Capacity Helical Piles – A New Dimension for Bridge Foundations", 8th International Conference on Short and Medium Span Bridges, Niagara Falls, Canada, Aug 3 -6, 2010, pp. 142-1 - 142-10.

Sakr, M., Mitchells R., and Kenzie J. (2009) "Pile Load Testing of Helical Piles and Driven Steel Pipes in Anchorage, Alaska", 34th Annual Deep Foundation Conference, DFI, Kansas City, MO, October 20-23, 2009.

Sakr, M. (2009) "Lateral Resistance Of Helical Monopole Bases", 62nd Canadian geotechnical and 10th Joint CGS/ IAH-CNC Groundwater Specialty Conference, Halifax, Nova Scotia, September 21 – 24, 2009, pp 260 - 267.

Sakr, M. (2009) "Lateral Resistance of Helical Piles in Oil Sands" In Proceedings of the 2009 International Foundation Congress and Equipment Expo, Orlando, Florida, ASCE, Geotechnical Special Publication No. 185, pp. 464-471.

Sakr, M. (2008) "Performance of Helical Piles in Oil Sand", 61st Canadian geotechnical Conference and 9th Joint CNL Groundwater Conference, Edmonton, Alberta, September 21 – 24, 2008, pp.55- 62.

Sakr, M. (2008) "Helical Piles for Power Transmission Lines: Case Study in Northern Manitoba, Canada", Ninth International Conference on Permafrost, the University of Alaska, Fairbanks, June 29 – July 3, 2008, Extended Abstracts, pp. 261-262.

Sakr, M., and El Nagger, M.H. (2006) "Centrifuge Modelling of Uplift Behaviour of Tapered Piles". 59th Canadian Geotechnical Conference, Vancouver, British Colimbia, Canada, October 1-4, 2006, pp 73- 80.

Sakr, M., Tweedie, R., and Park, C. (2005) "Slope Stability of Anthony Henday Drive-Whitemud Creek Crossing". In Proceedings of K.Y. Lo Symposium, London, Ontario, Canada, July 7-8, 2005, pp. 274-284.

Sakr, M., El Naggar, M.H., and Nehdi, M. (2003) "Interface and Performance Characterisitcs of FRP/Concrete Piles". 56th Canadian Geotechnical Conference, Winnipeg, Manitoba, Canada, September 29-October 1, 2003.

El Naggar, M.H., Sakr, M., and Nehdi, M. (2003) "Toe Driving for Efficient Installation of Thin-Walled Piles". 56th Canadian Geotechnical Conference, Winnipeg, Manitoba, Canada, September 29-October 1, 2003.

Sakr, M., Nehdi, M., and El Naggar, H. (2003) "Composite FRP-Concrete Piles for Deep Foundation Applications". *ICPCM – A New Era of Building*, Cairo, Egypt., Feb. 18-20, 2003.

Sakr, M., Nehdi, M., and El Naggar, H. (2002) "Construction and Performance of Self-Consolidating Concrete Piles Confined in FRP Tubes". *Chicago*, USA., November. 18-20, 2002.

Allouche, E.N., Devaux, M., Sakr, M. and El Naggar, M. H. (2001) "Development and Testing of a Soil Classification Chart for a Miniature Cone Penetrometer". *Underground Infrastructure Research Conference*, Kitcheners, On., June 10 – 13, 2001, pp. 155-160.

Sakr, M., and El Naggar, M. H. (2000). "Design Charts for Tapered Piles". *53rd Canadian Geotechnical Conference*, Montreal, Vol. 2, pp. 967-974.

El Naggar, M. H. and Sakr, M. (1999). "Centrifuge Testing of Tapered Piles, Axial Behaviour". *52nd Canadian Geotechnical Conference*, Regina, pp. 143-140.