



Dr Javad Vahdatirad

PhD MSc BEng

Personal Information

Profile	Experienced principal geotechnical consultant at Geowynd Limited and a dedicated professional with over 14 years' experience in onshore and offshore geotechnical engineering. Javad's expertise includes offshore foundation geotechnical design and optimisation, design tools and software development, advanced numerical analysis in geotechnical engineering, reliability analysis in geotechnical engineering, interpretive reporting, geohazard identification & mitigation related to the offshore wind turbine foundations. Javad has a significant experience in programming for geotechnical analysis tools. He has developed many design tools and delivered foundation design for the several of the largest offshore wind farms in northern Europe.
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Nationality	Iranian / Danish Permanent
Education	Mar 2011 – Mar 2014: Aalborg University, DENMARK Sept 2006 – June 2009: Noshirvani University of Technology, IRAN
Qualifications	PhD – Geotechnical Reliability Design of Wind Turbine Foundations MSc – Geotechnical Engineering BEng – Civil, Structural & Environmental Engineering
Additional Training	GWO offshore training under OPITO standard

Experience

Jun 2021 – Present	Geowynd – Principal Geotechnical Consultant Providing geotechnical design services to the offshore industry including design tools and methodologies for different offshore foundations associated with the advanced numerical analysis to ensure a safe, robust and yet an optimum design.
Feb 2018 – May 2021	Vattenfall – Senior Lead Geotechnical Engineer leading the geotechnical design team for the offshore wind projects and technical steering for development of the in-house geotechnical design tools and guidelines. Where, the state-of-the-art geotechnical design methodology has been developed and fully certified by the 3rd party certifiers. The new geotechnical design methodology involves performing advanced 3D computational simulations at every WTG location. This unique approach allows for higher resolution modelling and thus more reliable predictions from the geotechnical analyses, which in turn allows for optimised foundation design. Furthermore, the new state-of-the-art geotechnical design methodology has been utilised, with a considerably higher level of savings and reliability comparing to the traditional design methodologies, in the design of Hollandse Kust wind farm in Dutch North Sea and Vesterhav Nord/Syd offshore wind farm in Danish North Sea.
Apr 2014 – Jan 2018	Universal Foundation A/S – Lead Geotechnical Engineer To set and develop the geotechnical design methodologies as well as coordinate, guide and allocate the working tasks and resources in the geotechnical team. Besides the mentioned primary tasks, working through the certifying procedure with facing and

	meeting the certifiers and 3rd party verifiers and forming a strong technical interaction to prove the presented geotechnical design methodologies were also included.
Mar 2011 – Mar 2014	Aalborg University – PhD Fellow Geotechnical Engineering Thesis entitled ‘Reliability-based design of wind turbine foundations – computational modelling’. A comprehensive study supported by several peer reviewed scientific papers in the high ranked publishers have been performed during the period.
June 2013 – Sept 2013	Colorado School of Mines – Visiting Researcher Reliability Analysis of a Gravity Based Foundation for Wind Turbines. Random Finite Element Model (RFEM) was developed to analyse the bearing capacity of a surface footing on soil with spatially variable soil parameters.
2010 – 2011	Fajr-e-Tosea Consulting Engineers Co – Senior Geotechnical Engineer Check, review and approve the geotechnical design and soil-structure interaction analysis and the geotechnical design of the underground structures as the 3 rd party reviewer.
2007 – 2010	P. O. Rahvar – Geotechnical Engineer Involving in different aspect of the geotechnical design in tunnelling for the urban railway projects. The working tasks were covering the geotechnical design activities from conceptual to detailed phases.

Publications

- Vahdatirad, M.J.**, Troya Diaz, A., Nielsen, S., Ibsen, L. B., Andersen, L.V., Ibsen, L.B., Firouzianbandpey, S., Griffiths, D. V., (2016) “A load-displacement based approach to assess the bearing capacity and deformations of mono-bucket foundations” In: Proceedings of the sixth international conference on structural engineering, mechanics and computation, Cape Town, South Africa.
- Firouzianbandpey, S., Ibsen, L. B., Griffiths, D. V., **Vahdatirad, M.J.**, Andersen, L.V., Sørensen, J.D., (2015) “Effect of spatial correlation length on the interpretation of normalized CPT data using a Kriging approach”, Journal of Geotechnical and Geoenvironmental Engineering, ASCE, 141(12), 1090-0241.
- Vahdatirad, M.J.**, Griffiths, D. V., Andersen, L.V., Sørensen, J.D., Fenton, G. A., (2014) “Reliability analysis of a gravity-based foundation for wind turbines: a code-based design assessment”, Géotechnique, 64(8), 635-645.
- Vahdatirad, M.J.**, Andersen, L.V., Ibsen, L.B., Clausen, J., Sørensen, J.D., (2013) “Probabilistic three-dimensional model of an offshore monopile foundation: reliability based approach” In: Proceedings of the Seventh International Conference on Case Histories in Geotechnical Engineering, Chicago.
- Vahdatirad, M.J.**, Andersen, L.V., Ibsen, L.B., Sørensen, J.D., (2014) “ Stochastic dynamic stiffness of surface footing for offshore wind turbines – a subset simulation approach”, Journal of Soil Dynamics and Earthquake Engineering, Vol. 65, 89-101.
- Vahdatirad, M.J.**, Bayat, M., Andersen, L.V., Ibsen, L.B., (2012)“ Probabilistic finite element stiffness of a laterally loaded monopile based on an improved asymptotic sampling method”, Journal of Civil Engineering and Management.
- Andersen, L.V., **Vahdatirad, M.J.**, Sichani, M. T, Sørensen, J.D., (2012) “Natural Frequencies of Wind Turbines on Monopile Foundations in Clayey Soils: a probabilistic approach”, Journal of Computers and Geotechnics, Vol. 43, pages 1-11.
- Vahdatirad, M.J.**, Bayat, M., Andersen, L.V., Ibsen, L.B., (2012)“An improved asymptotic sampling approach for stochastic finite element stiffness of a laterally loaded monopile”, In: Proceedings of the 9th International Conference on Testing and Design Methods for Deep Foundations, Kanazawa, Japan, p. 665-673.
- Andersen, L.V., **Vahdatirad, M.J.**, Sørensen, J.D., (2011) “Reliability-Based Assessment of the Natural Frequency of an Offshore Wind Turbine Founded on a Monopile”, In: Proceedings of the Thirteenth International Conference on Civil, Structural and Environmental Engineering Computing. ed. / B. H. V. Topping; Y. Tsompanakis. Stirlingshire, Scotland: Civil-Comp Press, (Civil-Comp Proceedings; 96).
- Vahdatirad, M.J.**, Andersen, L.V., Clausen, J., Sørensen, J.D., (2011) “The Dynamic Stiffness of Surface Footings for Offshore Wind Turbines: reliability based assessment”, In: Proceedings of the Thirteenth International Conference on Civil, Structural and Environmental Engineering Computing. ed. / B. H. V. Topping; Y. Tsompanakis. Stirlingshire, Scotland: Civil-Comp Press, (Civil-Comp Proceedings; 96).

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- Janalizadeh Choobbasti, A., **Vahdatirad, M.J.**, Torabi, M., Firuzian, S., Barari, A., (2011), "Assessment of Liquefaction Potential in the Corridor of an Urban Railway Project Based on a Numerical Method", Arabian Journal of Geosciences, Springer.
- Edalat, K., **Vahdatirad, M.J.**, Ghodrat, H., Firuzian, S., Barari, A., (2010), "Choosing TBM for Tabriz Subway Using Multi Criteria Method", Journal of Civil Engineering and Management.
- Janalizadeh Choobbasti, A., Ghodrat, H., **Vahdatirad, M.J.**, Firuzian, S., Barari, A., Torabi, M., Bagherian, A., (2010), "Influence of Rice Husk Ash Usage in Soil Stabilization Method with Lime", Journal of Frontiers of Earth Science in China, Springer.
- Sadrekarami, J., Kiyani, M., Fakhri, B., **Vahdatirad, M. J.**, Barari, A., (2011), "Seepage Analysis of Upper Gotvand dam concerning gypsum karstification (2D and 3D approaches)", Journal of Frontiers of Architecture and Civil Engineering, Springer.
- Vahdatirad, M. J.**, Ghodrat, H., Firuzian, S., Barari, A., (2010), "Analysis of an Underground Structure Settlement Risk Due to Tunneling- A Case Study from Tabriz, Iran", Songklanakarin Journal of Science and Technology (SJST), 32 (2).
- Janalizadeh Choobbasti A., **Vahdatirad, M. J.**, Firuzian, S., Edalat, K., (2009), "Construction Method Selection of Tabriz Urban Railway Based on Technical feasibility, Time & Cost", Proceeding of 8th Iranian Tunnelling Conference, T.M.U University.
- Miansari, Mo., Barari, A., Mirgolbabaie, H., **Vahdatirad, M.J.**, (2009), "Application of He's Variational Iteration Method to Nonlinear Helmholtz and Fifth-order KDV Equations", SDU Journal of Science (E-Journal), 4(2), 189-198.
- Vahdatirad, M. J.**, Ghodrat, H., Firuzian, S., Barari, A., (2009), "Analysis of Underground Market Settlement in Tabriz Urban Railway", European Journal of Scientific Research (EJSR), Volume 36, Issue 4, 595-605.
- Janalizadeh Choobbasti, A., Firuzian, S., **Vahdatirad, M. J.**, Barari, A., Rezaei, D., (2009), "Modeling of the Uplift Response of Buried Pipelines", Electronic Journal of Geotechnical Engineering, Vol.14, Bund. M.
- Janalizadeh Choobbasti, A., Nikfard, R., **Vahdatirad, M. J.**, Hesami, S., (2008), "Control of Jack Thrust Wall Displacement in Microtunnelling Method", Electronic Journal of Geotechnical Engineering, Vol.13, Bund. G.
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Key Projects and Experience

- Norfolk Vanguard and Norfolk Boreas:** Geotechnical design lead and management for the conceptual monopile design. The includes site characterisation, interpretive reporting, and conceptual design of the monopile penetration depths.
- Vesterhav Nord and Vesterhav Syd Offshore Wind Farm:** Geotechnical design lead and management, check and approve the geotechnical monopile designs performed by the external consultancies. Ensuring the certified geotechnical design methodology is properly implemented by fulfilling the specific design criteria.
- Hollandse Kust Zuid Offshore Wind Farm:** Leading the geotechnical design team. Designing and managing the cyclic laboratory testing for monopile foundation. Reviewing the geotechnical interpretive reports. The state-of-the-art geotechnical design methodology using the location-based 3D numerical analysis has been developed and used. The methodology has been certified and implemented, with a considerably higher level of savings and reliability comparing to the traditional design methodologies.
- Danish Kriegers Flak:** Review and evaluation of the detailed geotechnical analyses for monopile performed by the external consultancy.
- Deutsche Bucht:** Lead geotechnical engineer for the Pilot Wind Turbine Generator with Suction Bucket Monopile Foundation. Detailed geotechnical design for two demonstrator Mono Bucket foundation in North Sea, Germany. Advanced geotechnical methodologies are approved and certified by the third-party certifiers including DNVGL, and BSH. A numerical model has been developed to analyse 35hrs storm event according to German standards.
- LEEDCo Icebreaker:** Detailed design of 6 Mono Bucket foundations in Lake Erie, Cleveland, USA. Third party certifier for the geotechnical design methodology and inputs includes DNVGL.
- Hitachi Zosen Shariki:** Leading the geotechnical feasibility study of Mono Bucket foundation in Shariki offshore wind farm, Sea of Japan (East Sea). A set up for the seismic/earthquake analysis of the offshore wind turbine foundation has been developed to be utilized for the detailed design phases.
- Aberdeen Bay Suction Bucket Jacket:** Preliminary geotechnical design of two Mono Bucket foundations for Aberdeen offshore wind farm.
- DBank Creyke Beck A – Statoil:** Feasibility geotechnical study of Mono Bucket Foundation for two soil conditions in North Sea for Creyke Beck A Wind Project.
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Eon Delta Nordsee: Conceptual design of Mono Bucket foundation for E.ON Delta Nordsee Offshore Wind Farm in Nord Sea.

Carbon Trust FEEDid: Conceptual design of Mono Bucket foundation for “Carbon Trust FEED and Integrated Design” project.

Mærsk Oil platforms: Preliminary geotechnical design of suction jacket buckets for three different offshore sites in North Sea for Mærsk Oil platforms.
