**SYED M. JAFRI, P.E., PhD**

**U.S. CITIZEN**

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**CAREER SUMMARY**

Professional Mechanical Engineer with advanced degrees with over 11 years of experience in stress analysis, computational mechanics, finite element analysis (FEA), structural design, fitness-for-service, fracture mechanics and modeling, fatigue analysis, rotordynamics and vibrations in major EPCI companies.

**CORE COMPETENCIES**

* **Finite Element Analysis (FEA):** Nonlinear and linear structural FEA of structures and components.
* **Project Engineering/FEED and Detailed Design:** Experienced in the use of API/ASME/AISC/DNV codes.
* **Rotordynamics and Vibrations**
* **Software:** Expertise in modern analysis tools such as Abaqus (CAE, inp and Python Scripting), ANSYS (WB and APDL), SACS, STAAD Pro, Crackwise, Altair Hypermesh and AccuSolve, OrcaFLEX, Pipelay, Creo, SolidWorks, MATLAB, Maple, XLTRC, MathCAD, AutoCAD**.**

**PROFESSIONAL EXPERIENCE**

**Civil/Structural Lead Engineer** at AG&P Engineering (Houston, TX) 12/2017-05/2018

* Developed and analyzed a fixed offshore platform structural model in SACS for fitness of purpose evaluation in accommodating LNG regasification loads. Showed structural non-feasibility and saved several million dollars investments. Showed other alternatives for path forward.
* Wrote 3rd party vendors scope of works for civil, structural and geotechnical evaluations in the platform area. Developed 3D laser scanning scope of work.
* Evaluated structural configurations of LNG carrier barges for stand-alone regasification facility.

**Engineering Consultant/Abaqus FEA Instructor** at VIAS (Houston, TX) 05/2016-Present

* Developed detailed nonlinear thermal-stress Abaqus FEA on complex pipe-flange system to check and verify refinery designs. FEA analyses resulted in estimated savings of millions of dollars in lost production and hardware replacement for the client. Completed fast tracked project on time. Design issued for fabrication.
* Lead technical training instructor of Abaqus FEA for stress analysis and composite modeling capability to engineers from various industries, including BOEING, as well as providing FEA engineering consultancy and support.

**Structural Lead, Senior Staff Engineer**at Technip (Houston, TX) 07/2012-11/2015

* Provided design and analysis technical lead using Abaqus and ANSYS FEA structural analyses for the subsea structures (PLETs, PLEMs, jumpers, pipelines, risers) and foundations. FEA results produced efficient designs in terms of weight and cost for client. Performed dynamic fatigue design of driven pile for foundation.
* Designed subsea structures for BP and Shell Malaysia and GOM subsea projects (Malikai, Stones, Coulomb, BC-10). Performed nonlinear buckling analyses for suction piles using Abaqus FEA. Performed FEA for PLETs, PLEMs design. FEA avoided expensive designs and saved millions of dollars to the client in expensive fabrication and deployment. Designs fabricated and successfully operational.
* Led research study on suction pile FEA for geotechnical capacity by developing complex 3D FEA models. This resulted in in-house capacity to predict geotechnical failure for suction piles under complex loading and boundary conditions.

**Senior Engineering Specialist** at WGK (Houston, TX) 01/2009-07/2012

* Provided advanced engineering support for structural and dynamic analyses using Abaqus FEA for projects and research/development and JIP studies.
* Developed and led nonlinear FEA analyses for Cascade Chinook, DNV JIP on spiral pipe, BP projects for various solid components. FEA resulted in failure prediction for components and resulted in economical alternatives for more expensive designs. Stress analysis used for fatigue analysis of critical components.
* Developed detailed piping route cost studies for BHP Macedon. Selected route saved 0.5MUSD.

**Project Engineer** at DeepSea Engineering (Houston, TX) 07/2007-12/2008

* Worked on analysis and design of subsea components, risers and pipelines using Abaqus FEA for projects.
* Designed PLEM using Abaqus FEA. The design successfully installed and operating.
* Developed riser analyses using OrcaFlex. The analyses led to successful riser installation and operations.

**Graduate Research Assistant (GRA)**  at Turbomachinery Laboratory, Texas A&M University (College Station, TX) 09/2003-05/2007

* Performed experimental and theoretical research of rotordynamic instability due to shrink fitted joints in the rotating machines. The research focused on quantification of shrink fits to avoid expensive machine instabilities.
* Measured vibrations of test rotors using eddy current proximity probes and NI LabView and ADRE DAQ systems. Simulated the rotors using XLTRC

**SELECTED TECHNICAL PUBLICATIONS**

1. Jafri, S. and Takkabutr, P., “Dynamic Stresses in a Driven Pile During Installation- Classical Wave Equation Model Solution using Partial Differential Equations”, OMAE2014- 24669, Offshore Mechanics and Arctic Engineering Conference, San Francisco, California, June 8-13, 2014
2. Jafri, S., Eltaher, A., and Jukes, P., “Dynamic Stresses and Fatigue Evaluation in Wind Turbines”, OTC 23381, Offshore Technology Conference, Houston, TX, April 30-May 3, 2012
3. Jafri, S., Eltaher, A., and Jukes, P., “Dynamics of Offshore Wind Turbines”, ISOPE 2011-TPC-1040, International Society of Offshore and Polar Engineers Conference, Maui, Hawaii, June 19-23, 2011
4. Panapitiya, U., Jafri, S., Wang, H., and Jukes, P., “Use of Finite Element Analysis for Stud Pre-Tension Determination of Large Diameter Integral Flanges with Ring Joint Gaskets”, Proceedings of the ASME 29th International Conference on Ocean, Offshore and Arctic Engineering, OMAE 2010, June 6-11, 2010, Shanghai, P.R. China (Paper Number: OMAE2010-20824)

**EDUCATION AND CERTIFICATIONS**

**Ph.D in Mechanical Engineering** (May 2007) Degree GPA: 4.0/4.0

Texas A&M University, College Station, TX

**Dissertation Topic**: Shrink Fit Effects on Rotordynamic Instability: Experimental and Theoretical Study ([thesis.tamu.edu](file:///%5C%5Cwp-fs-ntap-11.woodgroup.com%5Cjpk%5CUsers%5CSyed.Jafri%5CPermanent%20Residence%5CResume%5Cthesis.tamu.edu))

**M.S. in Mechanical Engineering** (May 2004) Degree GPA: 3.77/4.0

Texas A&M University, College Station, TX

**Thesis Topic**: Modeling of Impact Dynamics of a Tennis Ball with a Flat Surface ([thesis.tamu.edu](file:///%5C%5Cwp-fs-ntap-11.woodgroup.com%5Cjpk%5CUsers%5CSyed.Jafri%5CPermanent%20Residence%5CResume%5Cthesis.tamu.edu))

**B.E. in Mechanical Engineering** (May 1999) Degree GPA: 3.96/4.0

NED University of Engineering and Technology, Karachi, Pakistan

**Final Project Topic**: Design of LPG Storage Facility

* Registered Professional Engineer (PE) in the State of Texas (License Number: 107423)
* Member of American Society of Mechanical Engineers (ASME)
* Certified Simulia Instructor (CSI) with Dessault Systems
* Charter of Engineering (CEng) from IMarEST