

Reza Asgharzadeh Shishavan

Chemical Engineer

146 West, 1230 North, APT 336, Provo, UT 84604
Email: reza_asghar_sh@byu.edu Cell: (801) 400-7292

Objective

Seeking a graduate student internship position in the area of automation and optimization in the oil and gas industry.

Education

Doctor of Philosophy in Chemical Engineering – Process Control (GPA: 3.9/4.0) Aug 2011-Present
Brigham Young University

Master of Science in Chemical Engineering – Process Engineering 2007-2010
Tarbiat Modares University (TMU), Tehran, Iran

Bachelor of Science in Chemical Engineering – Petrochemical Processes 2003-2007
Sahand University of Technology (SUT), Tabriz, Iran

Research Projects

PhD Thesis, Monitoring, Control, and Optimization of Upstream Infrastructure 2011-present

- Distributed pressure control with nonlinear MPC and nonlinear optimizing estimation.
- Combined BHP and ROP maximization with wired drill pipe.
- TLP platform load balancing automation and monitoring system, fault detection algorithms, and control system through advanced fiber optic sensing technology.

MS Thesis, Thermal Cracking of Vacuum Residue 2007-2010

- Investigated the effect of kinetics of cracked oil and structural changes in thermal cracking of vacuum residues both experimentally and in simulation.

BS Thesis, Hydrogen Separation Using Palladium based membranes 2007

- Modelled Hydrogen Permeation through Palladium/a-Alumina Nanocomposite Membranes.

Professional Experience

Process Engineer, Astro Technology Inc. and Hess Corporation 2012- 2013

- Designed data acquisition and monitoring software for fiber optic sensors on two tension leg platforms (TLPs) (Okume Equatorial Guinea field in West Africa) for load balance control.
- Configured operator interfaces using OPC, Modbus and web programming for fast and reliable satellite communications and control.
- Collaborated on modelling TLP temperature, load and strain for platform stability.

R&D Engineer, Rock Wool Company 2008-2010

- Designed thermal oxidizer and control system for burning waste gas emitted during Rockwool production.
- Researched and modeled burning waste gas emissions from a Cupola (high temperature) furnace.

Process Safety Engineer, Sodreh Sazeh Pars Company 2008

- Contributed to a team effort to provide emergency shutdown procedures for chemical processes.

Process Engineer, Tabriz Refinery 2006

- Analyzed the performance of a catalytic reformer.

Other Design Projects

- Dynamic modeling, Optimization and Control of a thermal oxidizer for burning waste gas containing carbon monoxide. 2011
- Steam cracking of Tehran refinery vacuum residue (an R&D project of National Iranian Oil Refining & Distribution Company) 2010
- Air separation plant simulation via Aspen plus simulator. 2008
- Algorithm design of olefin refinery furnace by flow sheeting, partitioning, tearing, to obtain the best solving flowchart. 2008

- Basic design of Methanol to Olefin (MTO) Unit. 2007
- Design of Shell & Tube heat exchanger for Tabriz petrochemical plant (joint academically and industrial project) 2006

Awards and Honors

- **2011-2012:** Top chemical engineering graduate student in BYU.
- **2007:** Ranked top 1% and gained the highest chemical reaction engineering grade in the Nationwide University entrance examination for MS degree and admission to Tarbiat Modares University, 6th ranked among Middle East graduate schools.
- **2003:** Ranked top 1% in nationwide university entrance examination for BS degree and admission to Sahand University of Technology.

Computer and Programming Skills

- **Advanced Process Control (APC), simulation, and optimization** with APMonitor, MATLAB, Simulink and Python
- **OPC and Modbus Interface** with Kepserver and python
- **Process simulation** with HYSYS and Aspen plus
- **Computational fluid dynamics (CFD)** using Fluent
- **Programing languages:** MATLAB, Python, MySQL Database, Apmonitor, PHP, JavaScript and HTML
- **General Software:** Microsoft Office (Word, Excel, Power point), EndNote, Mathcad, Visio and Photoshop

Publications

NASA Technology Improves Safety On Offshore Platforms. Collaboration work with Astro Technology, Inc. and NASA published internationally in leading news outlets including Wall Street Journal, Bloomberg, Washington Post, etc. URL: <http://online.wsj.com/article/PR-CO-20130605-911282.html>, retrieved, 18 Sept 2013.

Hedengren, J.D, Mojica, J.L, Asgharzadeh Shishavan, R., Safdarnejad, S.M., Recent Advances in the Application of MDAE Systems, AIChE National Meeting, San Francisco, CA, Nov 2013.

Brower, D., Hedengren, J.D, Asgharzadeh Shishavan, R., and Brower, A., Advanced Deepwater Monitoring System, OMAE2013/10920, Nantes, France, June 2013.

Hedengren, J. D. and Asgharzadeh Shishavan, R., Powell, K.M., and Edgar, T.F., Implementation Details for Nonlinear Modeling, Data Reconciliation, and Dynamic Optimization, Preprint submitted to Computers and Chemical Engineering, 2014.

Asgharzadeh Shishavan, R., and Hedengren, J., Nonlinear Model Predictive Control of a Thermal Oxidizer System, Computing and Systems Technology Division, AIChE National Meeting, Pittsburgh, PA, Nov 2012.

Asgharzadeh Shishavan, R., Ghashghaee M., Karimzadeh R., , Investigation of kinetics and cracked oil structural changes in thermal cracking of Iranian vacuum residues, Fuel Processing Technology; 2011; 92; 2226.

Asgharzadeh Shishavan, R., Babaluo, A. A., Ahmadian Namini P., Modeling of Hydrogen Permeation through Palladium/ α -Alumina Nanocomposite Membranes, Iranian Journal of Chemistry & Chemical Engineering; 2011;29,4, 59:97-111.

Asgharzadeh Shishavan, R., Karimzadeh R., Ghashghaee M., Abbasi Aliabadi S., Effect of Operating Conditions in Thermal Cracking of Vacuum Residue, The 13th national Iranian Chemical Engineering Congress & 1th international regional Chemical and Petroleum Engineering conference (IChEC 2010).

Abbasi Aliabadi S., Karimzadeh R., Ghashghaee M., Asgharzadeh Shishavan, R., Effect of Operating Conditions and Physical Properties of the Feed on Sulfur Content of the Liquid Product in Thermal Cracking of Vacuum Residue and Its Kinetic Modeling, PETROLEUM RESEARCH; 2012; 22(70);3-12

Karimzadeh R., Ghashghaee M., Mohammadi A., Asgharzadeh Shishavan, R., Abbasi Aliabadi S., Jazayeri S.M., Mojtahedi S.A, Hosseini, M.S, Behroozi A., Nasrabadi A.M, Production of a naphtha-like fraction as olefin plant feedstock by thermal upgrading of the vacuum residues of Tehran and Bandar Abbas refineries. The 16th International Oil, Gas, Refining, and Petrochemical Exhibition, Tehran, 2011.

Abbasi Aliabadi S., Karimzadeh R., Ghashghaee m., Asgharzadeh Shishavan R., Effect of Operating Conditions and Physical Properties of the Feed upon Sulfur Content of the Liquid Product in Thermal Cracking of Vacuum Residue, The 13th national Iranian Chemical Engineering Congress & 1th international regional Chemical and Petroleum Engineering conference (IChEC 2010).