

# **HARSH BIREN VORA**

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4065 South Braeswood Blvd., Apt. 248, Houston, TX - 77025

## **EDUCATION**

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**08/2014 – Present**     **Doctor of Philosophy – Earth Science**     **GPA: 3.90/4.0**  
**Rice University, Houston, TX**

Relevant Coursework: Well Logging and Petrophysics, Sequence Stratigraphy, Petroleum Geology, Seismic Interpretation, Exploration Geophysics, Inverse Methods, Numerical Methods

**08/2009 – 05/2013**     **Bachelor of Technology – Petroleum Engineering**     **GPA: 8/10**  
**Pandit Deendayal Petroleum University, India**

## **RESEARCH**

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**05/2014 – Present**     **Petrophysical behavior of shales upon Fluid Injection**  
**Graduate Research, Geotechnical Laboratory, Rice University**

- Analyze evolution of permeability and pore structure in shales upon fluid injection using petrophysical laboratory measurements and numerical models
- Develop Lattice Boltzmann models simulating shale structure to build permeability analogs for varying mechanisms of fluid accommodation such as fracture propagation, micro-fracture growth and dilation
- Combine laboratory measurements of pulse-decay permeability, acoustic velocity and Nuclear Magnetic Resonance to study effect of pore fluid pressures on rock

**05/2015 – Present**     **Effect of rock stiffness, confining pressure and grain size distribution on micro-fracture growth and associated acoustic emissions – A discrete element method approach**  
**Graduate Research, Geo-mechanics and Structure Group, Rice University**

- Discrete element models of rock particles with varying elastic properties and grain size distributions are subjected to biaxial compression tests for a range of confining pressures
- Quantitative analysis of the evolution of spatial damage patterns and its associated Acoustic Emissions, material brittleness, and seismic frequency-magnitude relationship with deformation is carried out
- Evolution and control of Mohr-Coulomb parameters such as Cohesion and Angle of friction are evaluated for each experiment, to understand their controls on brittle and ductile deformation patterns

**08/2012 – 04/2013**     **Optimization of Hydraulic Fracture Analysis**  
**Undergraduate Thesis, Pandit Deendayal Petroleum University**

- Conducted laboratory experiments on cores to derive elastic properties of rock formation
- Applied Perkins-Kern-Nordgren (PKN) methodology to derive ideal fracture dimensions using measured elastic properties
- Conducted Net Present Worth analysis for production period of 10 years to determine optimum operating parameters

## **WORK EXPERIENCE**

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**07/2014 – Present**     **Research Intern – ConocoPhillips, Houston, TX**

- Improve understanding of Normal Compaction through petrophysical and mineralogical analysis of compaction trends in basins around the world
- Interpret well logs to derive sonic, density and porosity trends to define compaction trends in basins of economic interest through the world
- Conduct clay mineralogy analysis to understand effect of grain type and structure on evolution of rock

- Apply derive trends to current Pore Pressure Prediction schemes to understand development of abnormal pore-pressures

**01/2013 – 05/2014 Contract Employee – Interlink Petroleum Ltd., Ahmedabad India**

- Derived and analyzed geo-mechanical properties of formation from drilling reports, production data, seismic records and well logs
- Economic feasibility analysis of hydraulic fracture job for producing well of Interlink Petroleum Ltd.

**06/2012 – 08/2102 Intern – Summer Internship Program, University of Houston, Houston, TX**

- Prepared a proposal for drilling a new well in Beaumont, TX based on analysis of resistivity, spontaneous potential and gamma ray logs
- Studied water and gas saturation of data from nearby wells and local structural geology of area to complement analysis of well logs

**04/2012 – 06/2012 Well Services Intern – Oil and Natural Gas Corporation of India, Ahmedabad, India**

- Analyzed well logs to understand clay content and water saturation in near wellbore regions for wells in the Ahmedabad Asset
- Quantified the reduction in performance of wells due to swelling of clays in near wellbore region, applicable to nearly 20 problematic wells in the asset

**06/2011 – 07/2011 Process Engineering Intern – Petrofac Engineering Services, Chennai, India**

- Assisted in design of 3 vertical separators to be installed on offshore platforms
- Trained in basic process engineering and numerical modeling techniques used in the oil and gas industry

**HONORS**

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- 08/2015 British Petroleum - Rice University Scholarship**
- 08/2014 – 05/2015 Keck Fellowship, Department of Earth Sciences, Rice University**
- 01/2014 – 05/2014 Baker Hughes Scholarship, Department of Earth Sciences, Rice University**
- 05/2013 Best Undergraduate Research Project, Pandit Deendayal Petroleum University**

**AAPG ACTIVITY**

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- 06 /2015 – Present AAPG Vice President, Rice University Student Chapter**
- 05 /2015 – 05/2016 AAPG Secretary, Rice University Student Chapter**
- 08/2014 – Present AAPG Professional Master’s Representative, Rice University Student Chapter**

**SKILLS and CERTIFICATIONS**

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- Software: Presgraf, Grav-Mag, Petrel
- Programming: C, Matlab, Labview
- Certifications: 10/2015 – Labview Core 1, National Instruments  
08/2013 – ArcGIS, Rice University  
02/2013 – Offshore Production Systems, PetroSkills  
07/2012 – Artificial Lift Technologies, Weatherford

**TEACHING EXPERIENCE**

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- 08/2015 – 12/2015 Teaching Assistant, Quantitative Hydrogeology**