Yanfang Wang

Curriculum Vitae

3218, Patrick F. Taylor Hall, LSU
Baton Rouge, LA 70803
+1 (225) 933 9526
ywan168@lsu.edu
ywan168

Interests

- Advanced Drilling and Completion Engineering. Drilling and completion design, casing and cementing design, fluid recommendation, etc.
- Machine Learning. Apply machine learning and data mining techniques to manage shale gas field development to optimize production.

Education

2015–present **Ph.D Petroleum Engineering**, *Louisiana State University*, Baton Rouge, LA.

2019–present **M.S. Dual Degree in Computer Science**, *Louisiana State University*, Baton Rouge, LA.

2012–2014 **M.S. Petroleum Engineering**, *University of Louisiana at Lafayette*, Lafayette, LA.

2008–2012 **B.S. Petroleum Engineering**, *China University of Petroleum*, Beijing, China.

Research Experience

2015–present **Research Assistant**, *Craft & Hawkins Department of Petroleum Engineering, Louisiana State University*, Baton Rouge, LA.

- Investigate on foam flow behaviors in wellbore condition and rheological modeling study.
- Simulate underbalanced drilling when both stable wet foam and unstable dry foam exist. A sand cleanout field case using foam is used to verify.
- Simulate foam-assisted mud cap drilling technique for gas migration control. Propose a method for maximum pump pressure in this foam bullheading transient process.
- Investigate the benefits of foam-assisted liquid unloading in mature gas production well.
- Utilize Machine Learning techniques in unconventional reservoirs to maximize production.

2013–2014 **Research Assistant**, *Department of Petroleum Engineering, University of Louisiana at Lafayette*, Lafayette, LA.

- Drilling hydraulics simulation based on real-time database for drilling optimization. We used Neural Networks technique to optimize drilling parameters for safe and efficient drilling.

Professional Experience

05/19–08/19 **Engineering Intern**, *Pegasus Vertex, Inc.*, Houston, TX.

- Researching on best practices for foam cementing design in literature and validating cementing software with case studies.
- Underbalanced drilling software code testing/debugging and technical supports/solutions.
- Mentor: Hu Dai (hdai@pvisoftware.com)

05/18–08/18 **Engineering Intern**, *Pegasus Vertex, Inc.*, Houston, TX.

- Investigating heat transfer simulation in cementing by developing finite element model using CFD tool. The paper was presented at AADE2019.
- Mentor: Hu Dai (hdai@pvisoftware.com)

05/17–08/17 **Engineering Intern**, *Pegasus Vertex, Inc.*, Houston, TX.

- Developing finite element model for cementing displacement efficiency simulations with CFD tool. The paper was presented at AADE2018.
- Mentor: Hu Dai (hdai@pvisoftware.com)

05/16–07/16 **Engineering Intern**, *SINOPEC*, Beijing.

- Conducted hydraulic fracturing numerical simulation. Fracturing design and Minifrac tests and pressure matching. Production forecast and history-matching.

05/13–07/13 **Drilling and Completion Fluid Laboratory Intern**, *SINOPEC*, Beijing.

- Conducted laboratory work to analyze stability and compatibility of compound fluids with polymers and surfactants in room temperature and HTHP for field preparations. Foam stability in terms of clay and temperature.

Teaching Experience

2015–present **Teaching Assistant**, *Craft & Hawkins Department of Petroleum Engineering, Louisiana State University*, Baton Rouge, LA.
Rock and Fluid Properties Lab (PETE 2034)
Field Operations/Production Lab (PETE 3037)
Economic Aspects of Petroleum Production (PETE 3025)

Selected Courses

Petroleum Engineering:
Fluid Flow and Heat Transfer in Wellbore (PETE 4084)
Unconventional Reservoirs (PETE 4090)
Computational Fluid Dynamics (ME 7933)
Permain Basin (GEOL7900)

Computer Science:
Advanced Data Structures and Algorithm Analysis (CSC 3102)
Artificial Intelligence (CSC 4444)
Deep Learning (CSC 7343)
Data Mining and Knowledge Discovery from Datasets (CSC 7442)

Technical Skills

Programming Languages: C/C++, Matlab, Python, VBA, prior experience in Shell

Simulation Tools: ANSYS, OLGA, Petrel, IP (Interactive Petrophysics), E-Stimplan, Fracpro

Operating Systems: Microsoft Windows, Linux, iOS

Office Tools: Microsoft Office, Libre Office, LaTex

Databases: MySQL

Source Control: GitHub

Publications

2019 **Y. Wang** and Hu Dai. CFD Analysis and Model Comparisons of Circulating Temperature During Cementing Job, AADE-19-NTCE-004, presented at the 2019 AADE National Technical Conference & Exhibition, Denver, Colorado, 9 -10 April, 2019.

2019 C.J. Thiberville, **Y. Wang** , P.J. Waltrich, W.C. Williams and S.I. Kam. Modeling of Smart Pigging for Pipeline Leak Detection: From Mathematical Formulation to Large-scale Application, SPE 198648 to be presented at the Gas & Oil Technology Showcase and Conference, Dubai, UAE, 21-23 October.

2018 **Y. Wang** and Hu Dai. Parametric Analysis of Efficiency Using an Efficient Mud Displacement Modeling Technique, AADE-18-FTCE-096, presented at the 2018 AADE Technical Conference & Exhibition, Houston, Texas, 10-11 April, 2018.

2018 **Y. Wang**, C. Thiberville and S.I. Kam. Modeling of Foam-Assisted Wellbore Cleanup and Drilling Processes with Both Dry- and Wet-Foam Rheological Properties, SPE 191263, presented at the SPE Trinidad and Tobago Section Energy Resources Conference, Port of Spain, Trinidad and Tobago, 25 -27 June, 2018.

2017 C.J. Thiberville, **Y. Wang**, P. Waltrich, W.C. Williams, and S.I. Kam. Evaluation of Software-based Early Leak Warning System in the Gulf-of-Mexico Subsea Flowlines, *SPE Production & Operations*. SPE 187417, presented at the 2017 SPE Annual Technical Conference & Exhibition, San Antonio, TX, 9-11 Oct. 2017.

2017 **Y. Wang**, C. Thiberville, and S.I. Kam. A New Model for Foam Flow in Pipes and Its Application in Drilling Processes, *International Journal of Modern Engineering (IJME)*, P. 21-32, Vol. 18, No.1(Fall/Winter), 2017.

2015 **Y. Wang**, S. Salehi. Application of Real-Time Field Data to Optimize Drilling Hydraulics Using Neural Network Approach. *Journal of Energy Resources Technology* 137(6), 2015.

2015 **Y. Wang**, Saeed Salehi. Drilling Hydraulics Optimization Using Neural Networks. SPE 173420, presented at the SPE Digital Energy Conference & Exhibition, 3-5 March, The Woodland, Texas, USA 2015.

2014 **Y. Wang**, S. Salehi. Refracture Candidate Selection Using Hybrid Simulation with Neural Network and Data Analysis Techniques. *Journal of Petroleum Science and Engineering*, Volume 123, Pages 138–146, 2014.

Poster and Presentation

2019 C.J. Thiberville, **Y. Wang**, and S.I. Kam. Simulation of Foam-Assisted Mud Cap Drilling Processes. **1st Place Winner**, presented at the 23rd Annual Gulf of Mexico Deepwater Technical Symposium, New Orleans, LA, 26-28 August, 2019.

2019 R. Wang, **Y. Wang**, M. Tyagi, Y. Chen, and S.I. Kam. Predicting Transient Wellbore Temperature Profile by Using Multi-Dimensional CFD Analysis for Offshore Wells. Honored to present at the 23rd Annual Gulf of Mexico Deepwater Technical Symposium, New Orleans, LA, 26-28 August, 2019.

2016 **Y. Wang**, P. Waltrich, W. Williams, and S.I. Kam. An Improved Foam Model for Fracturing and Drilling Applications by Combining Wet- and Dry-Foam Rheological Properties. Finalist with the Nation of poster presented at the AADE National Technical Conference & Exhibition, Houston, TX, 12-13 April, 2016.

2015 **Y. Wang**, A. Edrisi, W, Williams, and S.I. Kam. Foam Drilling Hydraulics Calculations Using Two Foam-Flow Regimes. Honored to be invited to present at the 19th Annual Gulf of Mexico Deepwater Technical Symposium, New Orleans, LA, 18-20 August, 2015.