Yanfang Wang

Curriculum Vitae

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Summary

- 4+ years of data analysis work to solve optimization problems in drilling and completion industry
- 4+ years of research experience solving drilling and completion Problems in unconventional plays
- 3+ years of experience applying efficient machine learning models to petroleum industry
- 2+ years of experience processing, cleansing, and verifying the integrity of data
- 1+ year of software development experience

Education

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

2019–present **M.S. 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.
- Statistical analysis of laboratory data to generate mathematical foam models and data visualization.
- Python implementation and data analysis of transient foam flow model.
- Developing Finite Element model and analyzing data from simulation software such as Fluent.
- Production optimization with gas/foam lift.

2020–present **Research Assistant**, *Division of Computer Science and Engineering, Louisiana State University*, Baton Rouge, LA.
- Utilizing various ML tools to optimize oil production and completion cost in unconventional plays.
- Multi-variate LSTM model to predict natural gas price based on the historical information.
- Experience with natural language processing (NLP)

2013–2014 **Research Assistant**, *Department of Petroleum Engineering, University of Louisiana at Lafayette*, Lafayette, LA.
- Artificial Neural Networks application for drilling hydraulics optimization for safe and efficient drilling.

Professional Experience

05/19–08/19 **Research Engineer**, *Pegasus Vertex, Inc.*, Houston, TX.
- Hydraulics model validation in drilling software product for integrity.

05/18–08/18 **Research Engineer**, *Pegasus Vertex, Inc.*, Houston, TX.
- Investigating and validating heat transfer model to verify the integrity of software products.

05/17–08/17 **Research Engineer**, *Pegasus Vertex, Inc.*, Houston, TX.
- Developing 3D Finite Element Model for simulations with CFD tool.

Teaching Experience

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

Selected Courses

Petroleum Engineering:
Permain Basin (GEOL 7900)
Unconventional Reservoirs (PETE 4090)
Computational Fluid Dynamics (ME 7933)

Computer Science:
Machine Learning (CSC 7333)
Deep Learning (CSC 7343)
Data Mining and Knowledge Discovery from Datasets (CSC 7442)
Introduction to Database Systems (CSC 4402)
Operating System (CSC 4103)
Advanced Data Structures and Algorithm Analysis (CSC 3102)

Certifications and Technical Skills

Certification: Machine Learning with Python. Coursera, issued in Jan 2020.

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

Machine learning Tools: scikit-learn, Pytorch, TensorFlow, Keras, Pandas

Operating Systems: Microsoft Windows, Linux, iOS

Office Tools: Microsoft Office, Libre Office, LaTex

Databases: MySQL

Source Control: GitHub

Publications

2020 **Y. Wang**, C. Thiberville and S.I. Kam. Numerical Modeling, Simulation and Lab Testing of Foam-Assisted Mud Cap Drilling Processes Dealing with Non-Newtonian Foam Rheology, SPE-200513-MS, will be presented the SPE/IADC Managed Pressure Drilling and Underbalanced Operations Conference and Exhibition, Denver, Colorado, USA, 21-22 April, 2020.

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.