

RESEARCH INTERESTS

- Enhanced Oil Recovery • Fiber Optic Sensing • Machine Learning and Data Mining

EDUCATION

Ph.D., Petroleum Eng., University of Calgary , Canada, <i>GPA 4/4</i>	2012
B.Tech., Electrical Eng. (Power), Indian Institute of Technology Delhi , India, <i>GPA 8.4/10</i>	2006
Exchange Program, Electrical Eng., University of British Columbia , Canada	2004

WORK / RESEARCH EXPERIENCE

• Assistant Professor, Louisiana State University , Baton Rouge, LA (USA)	2019-Present
• Research Engineer, Chevron , Bakersfield, CA (USA)	2014-2018
• Reservoir Engineer, Chevron , Houston, TX (USA)	2013-2014
• Simulation Engineer, Chevron , Calgary, AB (Canada)	2012-2013
• Visiting Scholar, Stanford University , CA (USA)	2010
• Research Intern, Shell , Calgary, AB (Canada)	2009
• Field Engineer, Schlumberger , Whitecourt, AB (Canada)	2006-2007
• Research Intern, Technische Universität Dresden , Dresden (Germany)	2005

TEACHING EXPERIENCE

Courses taught at LSU

▪ Graduate Reservoir Engineering , PETE-7041 (Graduate course)	2021
▪ Petroleum Economics , PETE-3025 (Undergraduate course)	2020-2021
▪ Well Logging , PETE-3036 (Undergraduate course)	2019
▪ Formation Evaluation , PETE-4088 (Graduate and Undergraduate Course)	2019, 2021

Courses taught at Chevron in Bakersfield (USA) and Rumbai (Indonesia)

▪ Basic Thermal Engineering	2015-2018
▪ Applied Heat Management	2015-2018
▪ Steamflood Forecasting	2015-2018
▪ Petrophysics for Heat Management	2015-2018

AWARDS & RECOGNITIONS

➤ Express Research Grant , Tendeka	2022
➤ Leveraging Innovation for Technology Transfer (LiFT) grant , LSU	2021
➤ Industrial Ties Research Subprogram (ITRS) grant , Louisiana Board of Regents	2021
➤ LINKS with Industry and National Labs grant , Louisiana Board of Regents and NSF	2021
➤ NASA Research Enhancement Award , NASA LaSPACE	2020
➤ DOE grant for Quantum Enhanced Fiber Optic Sensing for Oil and Gas Applications	2020
➤ Faculty Research Grant for creating an Analytics Center of Excellence, LSU	2019
➤ Emerging Faculty Travel Award , NSF EPSCoR	2019
➤ Digital Scholarship for novel data science project awarded, LSU Library	2019
➤ Certificate of Digital Innovation , Chevron	2018
➤ Selected for Chevron's Data Science Development Program for Data Analytics initiatives	2018
➤ Selected for Chevron's Mentoring Excellence in Technology for technical achievements	2017
➤ SPE Outstanding Service Award , given to 0.1% of over 110,000 members worldwide	2016
➤ Consistently ranked as " Top Performer " at Chevron (99 th percentile)	2015-2018
➤ Lean Sigma Green Belt Certification - lead 15 Lean Sigma projects saving over \$5 MM	2016
➤ SPE Technical Editor Recognition for excellence as a Technical Editor of SPE's journals	2015
➤ Stanford University Graduate Travel Award, Stanford University	2011

- Penn West Energy Graduate Scholarship, University of Calgary 2011
- Dr. Roger Butler Memorial Graduate Scholarship, University of Calgary 2010–2011
- “**Best Technical Presentation**” at the Improved Oil Recovery Conference, Tulsa, USA 2010
- Society of Petroleum Engineers (SPE) of Canada Graduate Scholarship 2010–2011
- “**Best Graduate Paper**” at the Canadian International Petroleum Conference, Calgary 2009
- Zandmer and Ursula Graduate Scholarship, University of Calgary 2009–2010
- Elnova Award for the “**Best Undergraduate Project**” in Power Engineering at IIT–Delhi 2006
- **Director’s Merit Certificate** for being amongst the top 7% students in IIT–Delhi 2004, 2005
- Jawaharlal Nehru National Merit Scholarship by the Steel Authority of India Ltd. 2002–2006

STUDENT MENTORING

- **Faculty Mentor for Student Research Mentorship Program** at Kenilworth Middle School 2021-22
- **Faculty Advisor:** LSU SPE Student Chapter 2019-Present
- **Mentor:** Halliburton Scholar Program at LSU College of Engineering 2019-2020
- **Faculty Mentor:** NSF Research Experience for Undergraduates 2019-2020
- **Research Mentor:** LSU President’s Future Leaders in Research program 2019

PROFESSIONAL ACTIVITIES

- **Associate Editor,** SPE Journal 2022-Present
- **Technical Committee Member,** SPE Fiber Optics Workshop 2020-Present
- **National Science Foundation** Review Panelist 2019
- **Technical Review Board,** Sensors Journal 2020-Present
- **Executive,** SPE Distinguished Lecture Committee 2016-2018
- **Technical Committee Member,** 2018 SPE Western Regional Conference 2017-2018
- **Corporate Secretary,** Chevron Asian Employee Network 2017-2018
- **PetroTech Lead and Board Executive,** Chevron Women’s Network 2014–2016
- **Editorial Activity:** Sensors, SPE Journal, SPE Reservoir Evaluation & Engineering Journal, SPE Production & Operations Journal, SPE Economics and Management, Materials Journal 2013-Present
- The Natural Sciences and Engineering Research Council of Canada 2012-Present
- **Management Summer School:** Handelshochschule Leipzig (HHL)– Germany Summer 2005

FUNDED RESEARCH PROJECTS

Project Title	Grant Title, Sponsor	Period	Role
Wellbore Gas Migration Studies in Drilling Fluids	Exxon, Chevron	2021-2023	Co-PI
Fiber Data Optimization, Transmission and Storage	Swellfix LLC	2022-2024	PI
Fully Distributed Pressure Sensing using Novel Side-Hole Fiber	LSU Board of Supervisors, LiFT	2021-2022	PI
Fiber Optic Sensing for Sand Detection in Offshore Production (collaborators: Shell, Derrick Equipment)	Industrial Ties Research Subprogram Board of Regents (BoR)	2021-2024	PI
Application of Satellite-borne Quantum Gravimetry Data for Geophysical Exploration	Research Enhancement Award, NASA & BoR	2020-2021	PI
Nanomaterial Enhanced Fiber-Optic Distributed Pressure and CO ₂ Sensor for Nuclear & Petroleum Engineering Applications (Collaborators: Oakridge National Lab)	LINK EPSCoR, National Science Foundation	2020-2021	PI
Quantum Enhanced Fiber Optic Sensing for Oil and Gas Applications (Collaborators: ORNL, University of Oklahoma)	U.S. Department of Energy (DOE)	2020-2022	Co-PI
Safe, sustainable and resilient development of offshore reservoirs through innovative technology (Key Collaborators: Tulane University, Israel Institute of Tech., Argonne National Lab)	US-Israel Center of Excellence, BIRD, DOE	2020-2025	Co-PI
In-situ combustion in Bellevue field in Louisiana – History, current state and future strategies (Collaborators: Bayou State Corp.)	Faculty Travel Grant, LSU	2020	PI
Creation of Analytics Center of Excellence for Data-Driven Research in Energy, Environment & Earth Science	Faculty Research Grant, LSU	2019-2022	PI
Experiments on Multiphase Flow of Live Muds in a Full-Scale Wellbore with Distributed Sensing for Kick and Gas-in-riser (Collaborators: Texas A&M University, Schlumberger)	Gulf Research Project, National Academy of Science	2018-2020	Co-PI
Online Portal to View Domestic Oil and Gas Production Data and Maps, to Aid Student Research and Learning (Collaborators: Department of Natural Resources, Louisiana)	Digital Scholarship Grant, LSU	2019	PI

Distributed Fiber Optic Sensing Technology in Offshore Environments – Current State and Future Directions	Emerging Faculty Travel Grant, BoR	2019	PI
Application of Fiber-Optic Sensors to Improve Safety in Oil & Gas Industry	Halliburton Scholars Program, LSU	2019, 2020	PI

PATENTS

1. **Sharma, J.**, Ekechukwu, E.K. “*Distributed Pressure Sensing using Fiber Optic Distributed Acoustic Sensor and Distributed Temperature Sensor*”, Provisional Patent Application # 63/189,533; Filed: May, 2021.
2. **Sharma, J.**, Almeida, M., Santos, O., Chen, Y., Kunju, M. “*Distributed Fiber Optic Sensing for Improved Well Control*”, Provisional Patent Application # 63/253,726; Filed: October, 2021.
3. **Sharma, J.**, Ekechukwu, G.K. “*Optical Fiber Based Distributed Pressure Sensing to Improve Safety and Productivity in the Oil and Gas Industry*”, Invention Disclosure # LSU-2021-069; Filed: July, 2021.

PEER-REVIEWED JOURNAL PUBLICATIONS

(* indicates corresponding author)

1. Ekechukwu, G.K., **Sharma, J.*** 2021. “*Well-scale demonstration of distributed pressure sensing using fiber-optic DAS and DTS*”. **Scientific Reports (Nature)** 11:12505 (2021).
2. **Sharma, J.***, Dean, J., 2021. “*In-situ combustion in Bellevue field in Louisiana – History, current state and future strategies*”. **Fuel** 284: 118992.
3. **Sharma, J.***, Gede, A., Mims, D, Barnes, D. 2021, “*Temperature Logging Guidelines and Factors that Affect Measurement Accuracy in Steamfloods.*” **Journal of Petroleum Science and Engineering** 196: 107727.
4. Wang, B., **Sharma, J.***, Chen, J., Persaud, P. 2021. “*Ensemble Machine Learning Assisted Reservoir Characterization using Field Production Data - an Offshore Field Case Study*”. **Energies** 2021, 14(4), 1052.
5. Santos, O., Williams, W., **Sharma, J.**, et al. 2021. “*Use of Fiber-Optic Information To Detect and Investigate the Gas-in-Riser Phenomenon.*” **SPE Drilling and Completions** 1-18: SPE-204115-PA.
6. Rezk, M.Y., **Sharma, J.***, Gartia, M.R. 2020. “*Nanomaterial-Based CO₂ Sensors*”. **Nanomaterials** 2020, 10(11), 2251.
7. **Sharma, J.***, Cuny, T., Ogunsanwo, T., Santos, O. 2020. “*Low-Frequency Distributed Acoustic Sensing for Early Gas Detection in a Wellbore.*” **IEEE Sensors** DOI: 10.1109/JSEN.2020.3038738
8. **Sharma, J.***, Santos, O., Feo, G., Ogunsanwo, O., Williams, W. 2020. “*Well-Scale Multiphase Flow Characterization & Validation Using Distributed Fiber Optic Sensors for Gas Kick Monitoring.*” **Optics Express** 28(26):38773.
9. Feo, G., **Sharma, J.***, Cunningham, S. 2020. “*Integrating Fiber Optic Data in Numerical Reservoir Simulation Using Intelligent Optimization Workflow*”. **Sensors** 20(11): 3075.
10. Feo, G., **Sharma, J.***, Kortukov, D., Ogunsanwo, T. Williams, W. 2020. “*Distributed Fiber Optic Sensing for Real-Time Monitoring of Gas in Riser during Offshore Drilling*”. **Sensors** 20(1): 267.
11. **Sharma, J.***, Inwood, S. B., and Kovscek, A. R. 2012. “*Experiments and Analysis of Multi-scale Viscous Fingering during Imbibition.*” **Society of Petroleum Engineers Journal** 17(4):1142-1159.
12. **Sharma, J.***, Moore, G. R., and Mehta, S.A.2012. “*Effect of Methane Co-injection in SAGD–Analytical and Simulation Study.*” **Society of Petroleum Engineers Journal** 17(3):687.
13. **Sharma, J.***, and Gates, I.D. 2011. “*Interfacial Stability and Displacement Efficiency in Steam Solvent Processes.*” **Society of Petroleum Engineers Journal** 16(1):55-64.
14. **Sharma, J.***, and Gates, I.D. 2011. “*Convection at the Edge of SAGD Steam Chamber.*” **Society of Petroleum Engineers Journal** 16(3): 503-512.
15. **Sharma, J.***, and Gates, I.D. 2010. “*Multiphase Flow at the Edge of Steam Chamber.*” **Canadian Journal of Chemical Engineering** 88(3):312-332.

CONFERENCE PRESENTATIONS

1. Alaofin, O., **Sharma, J.*** 2022. *Cross-Modality Super-Resolution of Satellite Gravity Data for Geophysical Exploration.* **IEEE International Geoscience and Remote Sensing Symposium**, Kuala Lumpur, July 17-22.
2. **Sharma, J.*** 2022. “*Well-Scale DAS and DTS Fiber Degradation Study.*” 2022 SEAFOM Optics Conference.
3. **Sharma, J.*** 2021. “*Application of Fiber Optic Sensing for Wellbore Monitoring.*” NHERI@UTexas **Distributed Acoustic Sensing Workshop**, Baton Rouge, October 21-22.
4. Santos, O.*, Almeida, A., **Sharma, J.**, Kunju, M., Chen, Y., Waltrich, P., 2022. *New Experimental Results Show the Application of Fiber Optic to Detect and to Track Gas Position in Marine Risers and Shed Lights on the Gas Migration Phenomenon Inside a Closed Well.* 2022 **SPE/IADC International Drilling Conference and Exhibition**, March 2021 (paper # SPE-204115).
5. Ekechukwu, G.K., **Sharma, J.*** 2021. “*Automated Detection & Quantification of Gas Influx Velocity in Wellbore from Fiber-Optic Sensor Data.*” **OSA Imaging & Applied Optics Congress**, July 2021, JTh6A.11.
6. Santos, O.*, Williams, W., **Sharma, J.**, Almeida, M., Kunju, M., Taylor, C., 2021. “*Use of Fiber Optic Information to Detect and Investigate the Gas-in-riser Phenomenon.*” 2021 **SPE/IADC International Drilling Conference and Exhibition**, March 2021 (paper # SPE-204115).

7. Williams, W. C.*, Taylor, C. E., Almeida, M. A., **Sharma, J.**, Waltrich, P. J., Chen, Y., Feo, G., Kortukov, D. 2020. “*Distributed Sensing and Real Time Visualization of Gas Kick Dynamics in a Full-Scale Wellbore*”, **SPE Annual Technical Conference and Exhibition**, 26-29 October, 2020. <https://doi.org/10.2118/201539-MS>.
8. **Sharma, J.*** 2020. “Tutorial - *Distributed Fiber Optic Sensors*.” **2020 International Conference on Optical Fiber Sensors**, Alexandria, Virginia, USA, June.
9. Feo, G., **Sharma, J.***, Santos, O., Toba, O., Williams, W. 2020. “*Multiphase Flow Characterization and Modeling Using Distributed Fiber Optic Sensors to Prevent Well Blowout*.” in **Optical Sensors and Sensing Congress**, OSA Technical Digest (Optical Society of America, 2020), paper EM3C.5. <https://doi.org/10.1364/ES.2020.EM3C.5>
10. Zhou, X.*, Tyagi, M., **Sharma, J.** 2020. “*Enhanced Automatic Segmentation of Salt Bodies from Seismic Images Using Wavelet Convolutional Neural Networks*.” **EAGE Conf.**, Amsterdam, Dec., Vol. 2020, pg 1-5.
11. Feo, G., **Sharma, J.***, Cunningham, S. 2020, “*Machine Learning Assisted History Matching to Integrate Fiber Optic Data with Reservoir Simulation*.” **SPE Canadian Heavy Oil and Unconventional Resources Conference**, Calgary, Canada, March. SPE-199919-MS.
12. Feo, G., **Sharma, J.***, Williams, W., Kortukov, D., Ogunsanwo, T. 2019, “*Application of Distributed Fiber Optics Sensing Technology for Real-time Gas Kick Detection*.” **SPE Annual Technical Conference and Exhibition**, Calgary, Canada, September. SPE-196113-MS
13. **Sharma, J.***, Feo, G. 2019, “*Application of Distributed Fiber Optics Sensing in Offshore Environments*.” **Deepwater Technical Symposium**, New Orleans, USA, August.
14. **Sharma, J.***, Feo, G. 2019, “*Distributed Fiber Optics Sensing Application for Gas-in-riser Detection and Mitigation for Offshore Well Control*.” **SPE Fiber Optics Workshop**, Denver, USA, August.
15. Gede, A., **Sharma, J.***, Mims, D, Barnes, D. 2018, “*Temperature Logging Guidelines and Factors that Affect Measurement Accuracy*.” **SPE Annual Technical Conference and Exhibition, Dallas, USA**, September.
16. **Sharma, J.***, Nzeagaing S., 2018 “*Application of Data Analytics for Selecting Chemical Stimulation Candidates in Venezuela*.” **Chevron Data Analytics Forum, San Ramon, USA**, October.
17. **Sharma, J.***, Gede, A., Barnes, D. 2017 “*Advanced Topics on Temperature Log Interpretation*.” **Chevron Reservoir Management Forum, Bakersfield, USA**, April.
18. **Sharma, J.***, Popa, A., Cassidy, S. 2017 “*The Use of Voronoi Mapping for Production Growth in a Heavy Oil Field*.” **SPE Western Regional Conference, Bakersfield, USA**, April.
19. **Sharma, J.***, Munoz, J., Seiler, W., 2016 “*San Ardo Strategy for Optimized Injection and Drainage*.” **Chevron San Joaquin Valley Reservoir Management Forum, Bakersfield, USA**, October.
20. **Sharma, J.***, Popa, A., 2015 “*Application of Voronoi for Production Increase Opportunities*.” **Chevron San Joaquin Valley Reservoir Management Forum, Bakersfield, USA**, September.
21. Bourda, N., **Sharma, J.**, Seiler, W., Angelo, C., 2015 “*San Ardo Field Geology: Barriers vs Baffles*.” **Chevron San Joaquin Valley Reservoir Management Forum, Bakersfield, USA**, September.
22. Bourda, N., **Sharma, J.**, Seiler, W., Angelo, C., 2015 “*San Ardo Optimization Project*.” **Chevron San Joaquin Valley Reservoir Management Forum, Bakersfield, USA**, September.
23. **Sharma, J.***, Tardio, A., Nguyen, T. 2015 “*Injection Strategy During Steam Constraints*.” **Chevron Lean Sigma Poster Session, Lost Hills, USA**, March.
24. **Sharma, J.***, Benson, I., Lolley, C, 2014 “*Improved Analytical Modeling of Steam-Aided Steam Assisted Gravity Drainage Process*.” **Chevron Heavy Oil Forum, Bakersfield, USA**, August.
25. **Sharma, J.***, Izgec, O., Lolley, C, 2014 “*Inferring Reservoir Continuity, Reservoir Pressure and Drainage Volume Using an In-house Analytical Method*.” **Chevron Heavy Oil Forum, Bakersfield, USA**, August.
26. **Sharma, J.***, Nguyen, T., and Munoz, J.D., 2014 “*West Central California Drainage Review Process*.” **Chevron San Joaquin Valley Reservoir Management Forum, Bakersfield, USA**, September.
27. Kumar, R., **Sharma, J.**, Rubin, E., Lolley, C, 2014 “*Dynamic Modeling of N.Boscan Leads to New Insights into Reservoir Behavior*.” **Chevron Heavy Oil Forum, Bakersfield, USA**, August.
28. **Sharma, J.***, Moore, G. R., and Mehta, S.A.2011. “*Effect of Methane Co-injection in SAGD—Analytical and Simulation Study*.” **Canadian Unconventional Resource Conference, Calgary, Canada**, November.
29. **Sharma, J.***, Inwood, S.B., and Kovscek, A. R. 2011. “*Experiments and Analysis of Multiscale Viscous Fingering during Imbibition*.” **SPE Annual Technical Conference and Exhibition, Denver, USA** October.
30. **Sharma, J.***, and Gates, I.D. 2010. “*Interfacial Stability and Displacement Efficiency in Steam Solvent Processes*.” **Improved Oil Recovery Symposium, Tulsa, USA**, April.
31. **Sharma, J.***, and Gates, I.D. 2010. “*Steam Solvent Coupling at the Chamber Edge in an In-Situ Bitumen Recovery Process*.” **SPE Oil & Gas India Conference, Mumbai, India**, January.
32. **Sharma, J.***, and Gates, I.D. 2009. “*Convection at the Edge of SAGD Steam Chamber*.” **8th World Congress of Chemical Engineering, Montreal, Canada**, August.
33. **Sharma, J.***, and Gates, I.D. 2009. “*Multiphase Analytical Modelling of Steam Assisted Gravity Drainage*.” **Canadian International Petroleum Conference, Calgary, Canada**, June.

INVITED TALKS

1. **Sharma, J.** 2021. “*Seminar on Fiber Optic Sensing*.” **Exxon**, 11 November.

2. **Sharma, J.** 2021. “*Wellbore Monitoring with Fiber Optic Sensing.*” **SPE Erbil (Iraq)**, 10 February.
3. **Sharma, J.** 2020. “*Application of Distributed Fiber Optic Sensing in Oil and Gas Industry.*” **University of Wyoming**, 15 October.
4. **Sharma, J.** 2019. “*Distributed Fiber Optic Sensing Technology in Offshore Environments – Current State and Future Directions.*” **Stanford University - SPE Golden Gate Section**, Stanford (CA), 14 November.
5. **Sharma, J.** 2019. “*Application of Distributed Fiber Optic Sensing for Gas Kick Detection.*” **Shell Digitalization & Innovation Team**, New Orleans (LA), 26 September.
6. **Sharma, J.** 2014. “*Steamflood for Heavy Oil Recovery in San Joaquin Valley.*” **California State University SPE Student Section**, Bakersfield (CA), 27 November.
7. **Sharma, J.** 2012. “*Improved Understanding of Thermal Recovery Techniques.*” **BIT's 3rd Annual World Congress of Well Stimulation and EOR, Xi'an, China**, 25-27 April.
8. **Sharma, J.** 2011. “*Modelling of Steam-Solvent Hybrid Processes.*” **Saskatchewan Research Council**, Regina, Canada, 6 December.
9. **Sharma, J., and Gates, I.D.** 2011. “*Interfacial Stability in Steam Solvent Recovery Processes.*” **16th European Symposium on Improved Oil Recovery**, Cambridge, UK, 12-14 April.
10. **Sharma, J.** 2011. “*Application of SAGD for Heavy Oil Recovery.*” **2nd Annual Global Heavy Oil Praxis Interactive Technology Workshop**, Istanbul, Turkey, 19-22 September.

RESEARCH FEATURED IN MEDIA

- **Public Radio:** <https://www.wrkf.org/show/talk-louisiana/2021-07-15/thursday-july-15th-jyotsna-sharma-jim-gates-mark-ballard>.
- **Journal of Petroleum Technology:** <https://jpt.spe.org/improving-temperature-logging-accuracy-steamfloods> and <https://onepetro.org/JPT/article-abstract/64/03/90/199723/Technology-Focus-Heavy-Oil-March-2012?redirectedFrom=fulltext>.
- **ABC Affiliate KATC News Network:** <https://www.katc.com/news/covering-louisiana/l-su-professor-developing-way-to-detect-oil-leaks-before-they-cause-ecological-damage>.
- **The Advocate:** https://www.theadvocate.com/baton_rouge/news/article_dc504f42-e00a-11eb-9946-a38f630a33d0.html.
- **Business Reports:** <https://www.businessreport.com/industry/l-su-engineer-researching-how-to-catch-oil-and-gas-leaks-faster>.
- **AP News:** <https://apnews.com/article/business-science-education-ee0193e56fce7e26ccd8b5160ce57ab3>