SRIRAM BALASUBRAMANIAN
Lead Engineer

wood.

Summary

Years of Experience
15+

Office of Employment
Chennai, India

Industries
Oil and Gas

Upstream/Midstream

Offshore/Onshore

Types of Facilities
Reservoir – Subsurface

Production Facilities

Pipelines

Areas of Expertise
Reservoir Simulation (Compositional Modeling)

Integrated Reservoir Management

Field Development Planning

CO2 Enhanced Oil Recovery

Unconventional/Shale/Tight Oil

Uncertainty Analysis/Probabilistic Forecasting

Machine Learning / AI

Pipeline Management Systems (Real time Monitoring, Virtual metering systems & Tuning)

Professional Summary

Value focused reservoir engineer with 15+ years global experience with US & international energy companies. Demonstrated success in appraisal, asset development, reservoir management of various types of hydrocarbon assets worldwide (green and brown fields, CO2-EOR, CCUS, Shale and unconventional reservoirs). Proficient in reservoir simulation, PVT modeling, compositional simulation, uncertainty analysis, experimental design, probabilistic forecasting and production optimization. Adept at applying data science, statistics, machine & deep learning to solve practical problems. Self-motivated, hardworking team player with strong problem-solving skills.

Qualifications

Education

PG Diploma Data Science (Deep Leaning) – IIIT Bangalore

PhD. Chemical Engineering, University of Utah, Salt Lake City

M.S. Chemical Engineering, University of Utah, Salt Lake City

B.Tech. Chemical Engineering, University of Madras, India

Software / Skills

- Virtuoso, VP Link, Maestro
- Reservoir Simulation: ECLISPE, CMG, CHEARS, Intersect,
- Geological Modeling: Petrel GOCAD, IHS Petra
- Res. Engg.: OFM, DSS, PEEP, Kappa, IHS Harmony, PVTSim
- IPM - MBAL, PROSPER, GAP
- Data Science/ML: Python, Numpy, Pandas, Scikit, Keras, Tensorflow, SQL, Tableau, Microsoft Bonsai AI platform
- C++, Python, Matlab, VBA

Languages

English

Tamil

Hindi

Experience

Lead Engineer, Intelligent Operations Group, Wood, Chennai, India

Part of the global Asset Performance Management team developing solutions for efficient management of oil and gas operations – Real time monitoring, virtual metering systems utilizing Wood's Virtuoso suite of software tools.

Performed tuning and optimization of simulation models for various assets such as Oben, Barzan, Jack St. Malo, Qatar Gas South. Tested the leak detection system for the Oben asset. Performed Liquid holdup studies for QG RasLaffan field

Developed Gen Filters, generated new trends and profiles as requested by the client.

Trained on applying Microsoft Bonsai 's AI platform to solve practical industrial problems

Specialist Reservoir Engineer

Kuwait Oil Company, Ahmadi, Kuwait

Spearheaded reservoir & waterflood management of the 2nd largest carbonate field in West Kuwait. Developed recommendations for efficient voidage replacement in different areas of the field

Lead compositional simulation studies (Petrel/Eclipse) supporting short & long-term development

Identified and prioritized workover candidates for recompletion, ESP replacement, water shutoff

Peer reviewed geological, simulation models developed by external consultants

Supported the Gas Cycling and Polymer EOR pilot studies of the EOR team and consultants

Mentored junior Kuwaiti nationals to develop their reservoir simulation and reservoir management skills

Technical Team Lead (Sr. Research Associate), Energy Industry Partnerships

Dept of Petroleum Engineering, University of Houston, Houston, TX

Supervisor: Dr. Ganesh C. Thakur (Distinguished Professor and NAE,NAI Fellow)

Advised and mentored a multidisciplinary team performing field research projects and recommending practical solutions for enhanced oil recovery (EOR) and efficient reservoir management (RM). Mentored MS & PhD students' thesis on reservoir simulation & machine learning applications. Delivered lectures and supported the advanced level Integrated Petroleum Reservoir Management course

Led the scoping studies and detailed design for the first CO_2 EOR pilot for an oil company in India. Spearheaded the development of static and dynamic models (compositional modeling using E300).

Developed and applied novel patent pending methods for EOR screening and assessment to select the best reservoir for EOR. Identified a high side opportunity of ~50 MMBBLS through effective RM

Supervised & performed history matching (Eclipse) and proposed new drilling locations for efficient reservoir management. Led the IPM modeling studies to identify facility bottlenecks

Recommendations led to ~$8MM potential revenue and savings. Identified an opportunity to add ~100 MMBBLS of oil in place. Presented recommendations to CEO and senior management

Developed proposals with the team and secured ~ $2.0 MM project funding to the University

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Developed & instructed the client's in-house training with the team on static and dynamic simulation, PVT modeling, EOR laboratory and pilot design

Conduct Integrated Reservoir Management Workshops for various clients

Senior Reservoir Engineer, Chevron Corporation, Houston, TX

Permian Basin Unconventional Shale Development

Led reservoir characterization, production and completion data analysis with subsurface team.

Interfaced with the data science team and optimized the completion (sand & water for hydraulic fracturing) using machine learning methods (decision tress random forest regression)

Prioritized development with geology, D&C, land resulting in the approval of $100+ MM project

Standardized workflows for generating type curves, decline curve analysis (time series forecasting)

Developed innovative workflows and streamlined rapid updating new data from various databases

CO2 Enhanced Oil Recovery, Rangely Field (Project Manager)

Managed a multi-disciplinary team that analyzed 500+ wells for conformance improvement

Identified 100+ workovers, conversions, re-drills, infills, and pattern realignment opportunities

Created a Spotfire tool with KPI dashboards for efficient CO2 flood management

Developed the long-term redevelopment strategy & identified ~70MMBBLS of contingent resources

Lead Simulation Engineer, Chevron Nigeria Mid Africa, Lagos, Nigeria

Applied experimental design for probabilistic history matching from multiple stacked reservoirs

Demonstrated the importance of communication through faults and directional aquifer movement

Calibrated the simulation model and recommend infill drill locations

Lead Simulation Engineer, Chevron Southern Africa (Block 0 Angola)

Performed complex reservoir studies on gas condensate, volatile oil reservoirs. Led compositional simulation efforts to assist appraisal planning & selecting preferred development alternative

Applied statistical DOE and developed proxy models using regression for probabilistic analysis

Supported drilling of 3 appraisal wells to delineate multiple fault blocks with stacked reservoirs

Identified critical value drivers in LPG & C5+ liquids of ~$100 MM NPV that led to the approval of the $4B project. Developed new workflows to characterize & quantify LPG and natural gas liquids

Reservoir management award for robust subsurface development planning

Senior Reservoir Simulation Engineer, Chevron ETC

Provided expert-level reservoir simulation support to the various business units of Chevron worldwide

Tested and benchmarked next-gen Intersect simulator for deployment to various business units.

Instructed reservoir simulation courses:- Applied reservoir simulation, compositional simulation, PVT modeling, uncertainty analysis, experimental design, history matching

Reservoir Engineer Intern, Chevron USA,
Developed a database for subsurface benchmarking of deep-water fields and interfaced with Spotfire
Optimized water injector location using a quality map approach in the Agbami deep water field

Professional History

- Lead Engineer, Wood, Chennai, India   12/2021 - Present
- Specialist Reservoir Engineer, Kuwait Oil Company, Ahmadi, Kuwait   06/2019 – 01/2021
- Team Lead, University of Houston, Petroleum Engg. Dept., Houston, USA   12/2016 – 05/2019
- Sr. Reservoir Engineer Chevron Mid Continent BU, Houston, USA   06/2012 – 06/2016
- Lead Reservoir Simulation Engineer, Chevron Nigeria, Lagos, Nigeria   05/2011 – 05/2012
- Lead Simulation Engineer, Chevron Southern Africa BU, Houston, USA   01/2008 – 12/2010
- Reservoir Simulation Consulting, Chevron ETC, Houston, USA   06/2007 – 05/2012