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Engineering & Scientific Consulting

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Professional Profile

Dr. Anand is a globally recognized technology leader with over 20 years of experience designing and scaling intelligent solutions across energy, healthcare, retail, and financial services sectors.

He specializes in agentic AI, generative AI, and advanced analytics, with deep expertise in operationalizing enterprise solutions for Fortune 100 companies. His implementations span a broad range of use cases - from autonomous systems, forecasting, predictive analytics, and deep learning, to building the data foundations that enable AI at scale and data governance frameworks. He has received multiple international and national awards for pioneering the application of AI and advanced sensor technologies to model, analyze, and optimize complex physical systems. A prolific contributor to the field, he has authored more than 30 peer-reviewed publications and patents spanning machine learning, analytics and advanced sensing technologies.

As a data and AI leader, Dr. Anand has built and delivered a portfolio of enterprise solutions that span the full spectrum — from strategy to production-grade deployment. His work encompasses complex, high-value use cases across industries, including GenAI-powered manufacturing and quality intelligence in life sciences, AI-driven operational optimization in energy, agentic AI for hyper-personalized wealth management in financial services, and digital twin and computer vision solutions for quality control in manufacturing. Beyond solution delivery, he has shaped the enterprise AI backbone for global organizations — defining AI strategy, architecting data governance frameworks, and building data foundations that enable scalable, secure, and responsible AI adoption at scale.

Prior to his consulting career, Dr. Anand served at SLB (formerly Schlumberger), where he directed large-scale engineering and data science programs and commercialized more than 20 sensor technologies and software products. His work there included pioneering AI techniques for complex operational decision-making, advancing remote sensing technologies, and developing machine learning algorithms for high-dimensional data analysis. He subsequently led the Data Science program at Riversand Technologies, where he invented novel deep learning and NLP techniques for enterprise master data management, enabling real-time processing of over one billion records.

Dr. Anand has contributed extensively to the academic and professional community, serving on editorial boards, acting as editor for leading journals such as Petrophysics, and reviewing for multiple peer-reviewed publications. As a consultant, he is known for combining deep technical expertise with strategic vision to help organizations harness AI as a core driver of transformation, innovation, and long-term competitive advantage.

Academic Credentials & Professional Honors

Ph.D., Chemical Engineering, Rice University, 2007

B.Tech., Chemical Engineering, Indian Institute of Technology, 2002

2016 SPE Young Professional Award

2013 Reservoir Characterization Award

2012 Best Exploration Technology Award

2005 SPWLA Best Paper Award

Prior Experience

Vice President - Data Science, Deloitte, July 2023 – February 2026

Head of Technology, Deloitte, September 2022 – July 2024

Associate Vice President, Strategy and Analytics, Deloitte, September 2018 - October 2023

Data Science and Analytics Program Manager, Riversand Technologies, September 2017 - October 2018

Technology Manager and Principal Scientist, Schlumberger, 2012 - July 2017

Senior Interpretation Engineer, Sugar Land, 2011 - 2012

Senior Scientist and Physicist, Sugar Land, 2007 - 2011

Research Assistant, Rice University, 2002 - 2007

Patents

US Patent 11,650,347: Fast measurement and interpretation of downhole multi-dimensional measurement, 2023 (Song YQ, Viswanathan RK, Hurlimann M, Anand V, Mutina A).

US Patent 11,435,304: Estimating downhole fluid volumes using multi-dimensional nuclear magnetic resonance measurements, 2022 (Anand V, Viswanathan RK, Jiang T, Rylander E, Ali M, Lewis RE).

US Patent 10,585,083: System and method for predicting viscosity of heavy oil formations based on nuclear magnetic resonance (NMR) measurements, 2020 (Anand V).

US Patent 2015/040889: Systems and methods for estimation of hydrocarbon volumes in unconventional formations, 2015 (Ali M, Anand V, Hamichi F).

US Patent 2016/0061986: Formation property characteristic determination methods, 2014 (Anand V, Jain V).

US Patent 9,459,330: System and method for obtaining nuclear magnetic resonance measurements on reservoir fluids for prediction of fluid properties, 2013 (Freedman R, Anand V, Tabrizi P, Torres RY, Grant DW, Catina D, Ganesan K).

US Patent 9,696,453: Predicting mineralogy properties from elemental compositions, 2013 (Freedman R, Anand V, Herron S, Herron MM).

US Patent 8,400,147: Predicting properties of live oils from NMR measurements, 2010 (Anand V, Freedman R).

US Patent 8,686,723: Determining Larmor frequency of NMR tools, 2010 (Anand V, Freedman R, Dementyev A, Tabrizi P, Catina D).

US Patent 2016/0047936: Systems and methods for formation evaluation using magnetic resonance logging measurements, 2014 (Ali M, Anand V, Hamichi F).

WO Patent 2012/078942: Method for estimation of borehole and fluid properties from nuclear logging measurements, 2012 (Anand V, Freedman R, Zhou T, Rose D, Beekman S).

US Patent 10,359,537: Determination of fluid saturation in shale reservoirs using NMR, 2019 (Ali M, Anand V).

Publications

Kudumala A, Humphreys M, Pernenkil L, Forte K, Anand V. "5 ways to consider leveraging AI in life sciences manufacturing," Wall Street Journal, 2022, Dec 5.

Anand V, Rampurawala Ali M, Abubakar A, Grover R, Neto O, Pirie I, Gonzalez Iglesias J. "Unlocking the potential of unconventional reservoirs through new generation NMR T1/T2 logging measurements integrated with advanced wireline logs," Petrophysics, 2017, 58(02), 81–96.

Anand V. "Novel methodology for accurate resolution of fluid signatures from multi-dimensional NMR well-logging measurements," Journal of Magnetic Resonance, 2017, 276, 60–68.

Freedman R, Herron S, Anand V, Herron M, May D, Rose D. "New method for determining mineralogy and matrix properties from elemental chemistry measured by gamma ray spectroscopy logging tools," SPE Reservoir Evaluation & Engineering, 2015, 18(04), 599–608.

Freedman R, Anand V, Grant B, Ganesan K, Tabrizi P, Torres R, Catina D, Ryan D, Borman C, Krueckl C. "A compact high-performance low-field NMR apparatus for measurements on fluids at very high pressures and temperatures," Review of Scientific Instruments, 2014 Feb, 85(2), 025102.

Freedman R, Anand V, Catina D, Grant B, Tabrizi P, Torres R, Ganesan K, Borman C, Krueckl C, Ryan D. "Major advancement in reservoir-fluid analysis achieved using a new high-performance nuclear magnetic resonance laboratory system," Petrophysics, 2013, 54(05), 439–456.

Anand V, Freedman R. "New methods for predicting properties of live oils from NMR," Petrophysics, 2012, 53(04), 256–271.

Freedman R, Anand V, Zhou T, Rose D, Beekman S. "A modern method for using databases to obtain accurate solutions to complex reservoir-characterization problems," SPE Reservoir Evaluation & Engineering, 2012, 15(04), 453–461.

Anand V, Freedman R, Crary S, Minh CC, Terry RL. "Predicting effective permeability to oil in sandstone and carbonate reservoirs from well-logging data," SPE Reservoir Evaluation & Engineering, 2011, 14(06), 750–762.

Anand V, Hirasaki G. "Paramagnetic relaxation in sandstones: distinguishing T1 and T2 dependence on surface relaxation, internal gradients and dependence on echo spacing," Journal of Magnetic Resonance, 2008, 190(01), 68–85.

Anand V, Hirasaki GJ, Fleury M. "NMR diffusional coupling: effects of temperature and clay distribution," Petrophysics, 2008, 49(04).

Anand V, Hirasaki G. "Diffusional coupling between micro and macroporosity for NMR relaxation in sandstones and grainstones," Petrophysics, 2007, 48(04).

Presentations

Anand V, Sun B, Mosse L, Mutina A, Jiang T, Brown RL, Crousse L. Toward accurate reservoir characterization from new-generation NMR logging. Paper presented at the SPWLA 58th Annual Logging Symposium, Oklahoma City, OK, USA, 2017.

Ortiz A, Mosse L, Bernhardt C, Anand V, Kausik R, Rylander E. Characteristics of Vaca Muerta formation revealed by NMR T1–T2 logging at large scale. Paper presented at the SPWLA 58th Annual Logging Symposium, 2017.

Ali MR, Anand V, Abubakar A, Grover R, Pirie I, Neto O. Characterizing light versus bound hydrocarbon in a shale reservoir by integrating new two-dimensional NMR and advanced spectroscopy measurements. Paper presented at the SPE/AAPG/SEG Unconventional Resources Technology Conference, 2016.

Anand V, Ali MR, Al-Adani N, Willis D, Freedman R, Hamichi F, Abubakar A, Grover R, Neto O, Aboud M, Iglesias JG. Unlocking the potential of unconventional reservoirs through new generation NMR T1/T2 logging measurements integrated with advanced wireline logs. Paper presented at the SPWLA 57th Annual Logging Symposium, Reykjavik, Iceland, 2016.

Venkataramanan L, Gruber FK, LaVigne J, Habashy TM, Iglesias JG, Anand V, Rampurawala MA, Jain V, Heaton N, Akkurt R, Rylander E, Lewis R. New method to estimate porosity more accurately from NMR data with short relaxation times. Paper presented at the SPWLA 55th Annual Logging Symposium, 2014.

Anand V, Freedman R, Minh CC. An insightful and robust approach for multi-tool interpretation: moving away from traditional black box methods. Paper presented at the International Petroleum Technology Conference, Beijing, China, 2013.

Anand V, Freedman R. New methods for predicting properties of live oils from NMR. Paper presented at the SPWLA 50th Annual Logging Symposium, The Woodlands, TX, USA, 2009.

Anand V, Hirasaki GJ. Paramagnetic relaxation in sandstones: distinguishing T1 and T2 dependence on surface relaxation, internal gradients, and echo spacing. Paper presented at the SPWLA 48th Annual Logging Symposium, 2007.

Anand V, Hirasaki GJ. Diffusional coupling between micro and macroporosity for NMR relaxation in sandstones and carbonates. Paper presented at the SPWLA 46th Annual Logging Symposium, 2005.

Project Experience

Artificial Intelligence & Data Science

- **Drug Manufacturing AI:** Led the development of a multi-agent, enterprise AI solution for pharmaceutical manufacturing—leveraging deep learning–based forecasting to optimize production, advanced root cause analytics to elevate product quality, and supplier and raw material intelligence to enhance yield.
- **Intelligent Cost Forecasting:** Architected an AI- and GenAI-powered supply chain cost forecasting platform that integrates internal and external signals to deliver forward-looking cost visibility and

actionable decision intelligence—enabling proactive sourcing and contract strategies and strengthening margin resilience against market disruptions.

- **Agentic Wealth Management:** Led the development of an enterprise-grade agentic AI platform for a leading investment bank, delivering hyper-personalized financial recommendations across investments, retirement planning, and financial goals by leveraging proprietary and market data, and architecting end-to-end capabilities including orchestration, memory management, evaluation frameworks, RAG-based data retrieval, and scalable cloud infrastructure.

- **Cognitive Data Platform:** Developed a cognitive data platform that unified siloed enterprise data across structured and unstructured sources, leveraging NLP, computer vision, and AI-driven entity resolution to automate classification and deduplication—significantly improving data quality, reducing manual effort.

- **Scalable Entity Resolution:** Invented and productized highly scalable deep learning algorithms for entity resolution in master data management, overcoming exponential computational complexity through a novel dynamic classification approach combining automated pattern recognition with human-in-the-loop feedback to enable accurate, large-scale data matching.

- **Predictive Maintenance Intelligence:** Designed and commercialized a predictive maintenance solution for the oil and gas industry that leverages probabilistic modeling of failure events and advanced clustering on IoT data to detect failure conditions early, thereby reducing downtime and improving asset reliability.

- **Carbon Commercialization Platform:** Engineered a cloud-native carbon commercialization platform that integrates enterprise and external data to deliver scientifically rigorous, standards-compliant carbon calculations and automated reporting—enabling scalable carbon credit generation and lifecycle management, and empowering organizations to monetize emissions reductions.

- **Automated Drilling Operations:** Pioneered the oil and gas industry's first AI-driven approach to automate decision-making in complex drilling operations, leveraging unsupervised learning to identify hydrocarbon signals within reservoirs and significantly enhance exploration precision and efficiency.

- **Reservoir Intelligence Innovation:** Invented advanced machine learning algorithms for analyzing oil reservoir data, enabling precise estimation of reservoir and fluid properties critical to optimizing production decisions and accurate calculation of economic oil reserves.

Additional Education & Training

Chief Technology Officer Program, The Wharton School, University of Pennsylvania

Editorships & Editorial Review Boards

Editor, Petrophysics, 2015-2017