Nikhil Vidhani

Lead Data Scientist, Target Corporation

Executive Summary

- Lead Data Scientist at Target, spearheading innovations in digital supply chain simulations, including building a promise simulator from the ground up that impacts 3% of all digital sales ($600+Mn).
- Demonstrated success in transforming complex business challenges into scalable data models, enhancing efficiency and accuracy across critical workflows.
- Extensive technical expertise in Python, PySpark, R, and SQL, with proven experience in machine learning, software engineering, and designing robust data pipelines.
- Formerly led a data science team at WNS, delivering advanced ML solutions for finance and auditing, driving multimillion-dollar operational savings.
- Academic credentials include a Ph.D. in Finance (IIM Bangalore) and a Master's in Engineering (IISc Bangalore), with research presented at prestigious international conferences.

Industry and Research Experience

Nov 2022 – Present
Lead Data Scientist, *Target Corporation, Bangalore*, Team Size: 5.
- Building end to end simulations for last mile operations: order allocation, available to promise, big-data pipelines
- Understanding and de-codifying ambiguous business problems into well-defined data relations and algorithms, highlighting gaps in understanding, and discovering potential impact
- Leading product enhancements, releases, fixes, and code-reviews
- Engage cross-functional teams in designing experiments and presenting our capabilities in deep-dives and floor-walks
- Mentoring senior data scientists, and managing user queries and feedback

Feb 2022 – Nov 2022
Sr. Group Manager (Data Science), *WNS Global Services, Bangalore*, Team Size: 7.
- Building F&A analytics/ML apps for payments, collections, reporting, prediction, and auditing functions
- Maintaining code-base (GitHub), APIs, automating deployment
- Mentor junior team members and conduct knowledge-sharing sessions

Jun 2016 – Jan 2022
Research Scholar, *Indian Institute of Management, Bangalore*, IC.
- Extensively researched asset pricing anomalies, examined impact of disagreement on trading volume, analyst forecasts, and 10K document characteristics
- Undertook comprehensive data collection, cleaning, modelling, and statistical analysis
- Presented in several conferences. `https://github.com/nik141088/phd-thesis-rmarkdown`

Jun 2018 – Jan 2022
Primary Instructor, *Programming and Data Analysis*, Batch Size: 5-40.
- Took multiple short/long courses on R programming, data analysis, and LaTeX
- Instructor Rating: 4.7/5 (`https://github.com/nik141088/applied-R`)

Jul 2012 – May 2016
Software Engineer, *Cisco Systems, Bangalore*, IC.
- Design, implement, test, review, and documentation of 4G-LTE and WiFi systems
- High Availability/Redundancy architecture. Network security.

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Major Projects

2023 – Present
Simulations Capability, *Target*.
- Led a team of 4 to design, implement, release, and maintain a simulation tool utilized by 40+ users across network planning, digital placements, store operations, and demand forecasting teams
- Facilitated user interactions for designing experiments, customizing inputs, and configurations to analyze various supply chain scenarios and assessing their impacts
- Optimized flow and data interactions to improve run-time by 30%
- Carried out 2 major and 8 minor release of our product in 2024
- Created a framework for accuracy measurement and automated reporting

2024 – Present
Promise Simulator, *Target*.
- Developed an Available-to-Promise (ATP) simulator from scratch, involving deep product/engineering discussions, algorithm design, interface design, data pipeline construction, automated deployment, and documentation.
- Conducted thorough testing and validation against actuals to improve model accuracy from 50% to 85%
- Discovered early use cases impacting 3% of all digital orders at Target ($600+ Mn)
- Use cases span engineering, fulfillment optimization, and network planning teams

2023 – 2024
Replay Mode and Logging, *Target*.
- Engineered a post-mortem analysis tool, employing massive parallelization of sequential tasks (*Replay*), for quick output evaluation
- Implemented granular logging for granular scrutiny of allocation decisions. Used tabular representation for easy consumption of logs
- Improved labor allocation accuracy from 50% to 90% and reduced Air service utilization by 10x

2022
QA Analytics, *WNS*.
- Highly configurable workflow tool designed to catch human errors in invoice indexing
- Provides a one-stop solution for outlier and anomalous transaction detection
- Automated bundling with portable-R, necessary packages, and configs for scalable hassle-free deployment
- Single tool deployed across 5 different audit teams within WNS. Caught $5+ Mn worth of scanned invoices with sanity issues.

2022
Audit Mate, *WNS*.
- ML solution to classify manual invoice-indexing errors and help controllers predict them right from the comfort of excel
- Built and served using *h2o* framework and deployed as an API service
- Increased audit error incidence from 10% to 95%
- `https://github.com/nik141088/audit-mate`

2022 – Present
Invoice Processing, *Personal*.
- Deep Learning based tool to compare similar looking invoices
- Multi-tiered comparison based on image embeddings and OCR text embeddings
- Can be used to boost data processor's efficiency and productivity
- `https://github.com/nik141088/invoice-processing`

2020 – 2021
Factiva Download, *IIMB*.
- Developed a robust, self-organizing, and highly parallel web-scraping system for Dow Jones Factiva news articles
- Automated network/scraping/parsing failures, de-duplication, and storage management
- Extracted and processed 25+ Mn articles and analyzed sentiment using GPT2/DistilBERT `https://github.com/nik141088/factiva-download`

Tools and Skills

Advanced	**Programming**, *Python, pyspark, hive, R, Shiny, C/C++, Kotlin/Java (basics).*
Advanced	**Machine Learning**, *Regression, Classification, NLP, MLOps (basics), h2o, Deep Learning, Tensorflow, keras.*
Advanced	**Design Principles**, *Data Structures, computational/space complexity, vectorization, functional programming, test-driven development, modular development, network security.*
Advanced	**Solutioning**, *Problem solving, product development, charting solutions, impact discovery, strategic thinking.*
Advanced	**Engineering**, *API, plumber (R), debugging, web-scrapping, Linux, code review, github, git, Databases, AWS, CI/CD.*
Advanced	**Visualization and Documentation**, *ggplot, plotly, R Markdown, Latex, MS Office.*
Expert	**Domain Knowledge**, *Last Mile Operations Research: available to promise and order allocation, Finance, Accounting, Statistics, Regression Analysis.*
Progressive	**Leadership/Interpersonal**, *Mentoring, project scoping/planning/managing, stakeholder management, product leadership, team building, hiring/interviewing.*

Education

2016 – 2021	**Doctor of Philosophy**, *Finance and Accounting*, Indian Institute of Management, Bangalore. CGPA: 3.64 / 4.00
2010 – 2012	**Master of Engineering**, *Electrical Communication Engineering*, Indian Institute of Science, Bangalore. CGPA: 6.4 / 8.0; Project Grade: A
2006 – 2010	**Bachelor of Technology**, *Electronics and Communication Engg.*, Bundelkhand Institute of Engg. and Tech., Jhansi (U.P.). Grade: 73.6%
2004 – 2006	**Schooling (12th Standard)**, *Science*, C.B.S.E.. Grade: 88.2%

Awards and Honors

2022	**Tech Genius, Transforming the Organization, Victory Fleet**, *WNS Global Services.*
2020	**Mirae Asset Scholarship (PhD Year 5)**, *Indian Institute of Management.*
2017–2018	**Director's Merit List (PhD Year 1 and 2)**, *Indian Institute of Management.*
2016	**96.5 percentile**, *Common Aptitude Test (CAT).*
2010	**AIR 20/105,000**, *Graduate Aptitude Test in Engineering (GATE).*
2006–2007	**Merit Scholarships**, *Intermediate Examination and Engineering.*

Publications and Conference Presentations

Sunny, A., Panchal, S., **Vidhani, N.**, Krishnasamy, S., Anand, S., Hegde, M., Kuri, J., & Kumar, A. (2017). ***A generic controller for managing TCP transfers in IEEE 802.11 infrastructure WLANs***. Journal of Network and Computer Applications, Vol 93, pp 13–26. DOI: https://doi.org/10.1016/j.jnca.2017.05.006.

Vidhani, N., Rangan, S., Basu, S., (2023). ***Return Anomalies, Disagreement, and Trading Volume***. SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4405950.
Conferences: *Hawaii Accounting Research Conference (2025), IIM Bangalore*

Vidhani, N., (2022). ***Trading Volume and Dispersion of Signals***. SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3682088.
Conferences: *International Conference on Derivatives and Capital Markets (2020), International Risk Management Conference (2020), Southern Finance Association (2020), Conference on Asia-Pacific Financial Markets (2020) Doctoral Consortium, World Finance and Banking Symposium (2020), Theories and Practices of Securities and Financial Markets (2020), 12th Emerging Market Finance Conference (2020), Southwestern Finance Association (2021), International Conference of the French Finance Association (2021), IIM Bangalore*

Krishnan, M., Rangan, S., & **Vidhani, N.**, (2021). ***Pricing of Earnings in the Presence of Informed Trades: A Simple GMM Approach***. SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3560147.
Conferences: *2015 NSE-NYU Conference, CAFRAL at RBI, IIM-Calcutta Finance Research Workshop, 3rd JAAF-India Conference, IIM Bangalore, IIT-Madras, IIT-Kharagpur, University of Washington*

Vidhani, N., (2022). ***Return Predictability using Price-to-Earnings Ratio***. SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3910641.
Conferences: *International Conference on Derivatives and Capital Markets (2021), World Finance and Banking Symposium (2021), India Finance Conference (2021), 15th NYCU International Finance Conference (2021), Asian Management Research and Case Conference (2022)*