Nikhil Vidhani

Lead Data Scientist – Digital Fulfilment & Simulations, Target Corporation

Executive Summary

- Architected end-to-end simulation capabilities for order allocation and available-to-promise (ATP) systems impacting 3% of all digital sales ($600+Mn).
- Ideated, designed and implemented a new consolidation algorithm for ATP projected to save $20Mn+ in shipping costs and drive $300Mn+ in incremental sales.
- Built unified simulation and ATP tools that are now the primary platform for scenario testing, sensitivity analysis, and policy design across Target's digital fulfilment network.
- Deep technical expertise in Python and R with extensive experience in distributed data pipelines (Spark, Kafka, Hive/Hadoop/SQL) algorithm design, machine learning, software engineering, and data pipeline development.
- Cross-functional leader partnering with product, engineering, and operations to translate ambiguous business problems into experiment-ready use cases, mentoring a 6-member data science team and driving an experimentation culture.
- Prior experience leading a data science team at WNS on finance and auditing analytics, and a strong research foundation with a Ph.D. in Finance (IIM Bangalore) and Master's in Engineering (IISc Bangalore) with work presented at multiple conferences.

Industry and Research Experience

Nov 2022 – Present

Lead Data Scientist, *Target Corporation, Bangalore*, Team Size: 5.

- Own design and expansion of end-to-end last-mile simulation platforms (digital twin) for order allocation and available-to-promise, enabling network-wide what-if analysis on inventory, capacity, and promise policies.
- Develop and manage advanced cost-versus-speed optimisation models for consolidation and promise speed generation, using large-scale simulations and production data to identify trade-offs and drive multi-million-dollar improvements in ship cost and digital sales.
- Lead product and technical roadmap for multiple simulation tools, including requirements prioritisation, code and design reviews, release planning, and operational support.
- Partner with supply chain, fulfilment, and digital product teams to scope high-impact questions, run scenario and sensitivity analyses, and recommend data-driven policy changes for speed, cost, and conversion.
- Collaborate closely with engineering to productionise next-generation promise logic and data pipelines (Kafka-based ingestion, PySpark/Hive transforms), providing design docs, test plans, and knowledge-transfer sessions.
- Mentor a team of five senior and junior data scientists through 1:1s, design discussions, and sprint ceremonies, coaching them on experimentation, stakeholder communication, and engineering best practices.

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Feb 2022 – Nov 2022 **Sr. Group Manager (Data Science)**, *WNS Global Services, Bangalore*, Team Size: 6.

- Led a 6-member data science team delivering analytics and machine-learning solutions for finance and accounting use cases (payments, collections, reporting, prediction, and auditing) for global clients, driving multi-million-dollar operational savings.
- Owned end-to-end lifecycle from problem framing with business stakeholders through data engineering, modelling, API development, and automated deployment, ensuring solutions were reliable and maintainable.
- Maintained shared GitHub repositories, code quality standards, and CI/CD workflows; mentored junior team members through code reviews, technical sessions, and structured knowledge-sharing.

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
- Published multiple papers and presented in several conferences. *Complete list available at:* `publications_CV.pdf`

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.

Major Projects

2025 – Present **Consolidation Algorithm Revamp**, *Target*.

- Redesigned Target's consolidation algorithm to jointly optimise customer promise speed and shipping cost across the last-mile network, replacing legacy heuristics with a principled modelling framework.
- Used integrated simulations (Promise/GOA) as a digital twin to evaluate policy alternatives under realistic order, inventory, and capacity patterns, including scenario and sensitivity analysis.
- Quantified projected impact of $20M+ lower ship costs and $300M+ incremental digital sales through improved conversion and margin.
- Implemented, tested, and tuned the algorithm under strict latency and reliability constraints for the P0 promise module.
- Influenced product, engineering, and fulfilment stakeholders via clear decision documents, presentations, and knowledge-transfer sessions to secure buy-in and plan roll-out.

2023 – Present **Simulations Capability**, *Target*.

- Led a 5-member team to design, implement, and maintain a unified simulation platform that acts as a digital twin for last-mile promise and fulfilment systems, now used by 100+ stakeholders across planning, digital fulfilment, and operations.
- Integrated Promise and GOA simulators into a single workflow enabling joint optimisation of delivery speed, node selection, and shipping cost for end-to-end scenarios.
- Transitioned data ingestion from static files to Kafka-based pipelines and scalable PySpark/Hive processing, improving data freshness and reducing manual intervention.
- Implemented robustness features such as input validation, scenario templates, and automated reporting, reducing user debug and support time by roughly 50%.
- Owned roadmap and release management (three major and eight minor releases in 2025), including automated accuracy measurement and reporting frameworks.

2024 – Present
Promise Simulator, *Target.*
- Developed an ATP simulator from scratch, covering algorithm design, data model, product discussions, interface design, and deployment automation.
- Ran large-scale backtests against production behaviour to validate the simulator and iteratively improve accuracy from about 40% to 85%, building trust with partner teams.
- Identified and delivered early use cases influencing roughly 3% of all Target digital orders ($600M+), including what-if analysis of promise policies and supply-chain strategies.
- Actively leveraged by fulfilment optimisation, engineering, and supply chain planning teams as the core platform for testing new promise and fulfilment logic before production rollout.

2021 – 2024
Past Projects, *Target, WNS, IIMB, and Personal.*
A list of selected past projects: `selected_past_projects_CV.pdf`

Tools and Skills

Advanced
Programming & Big Data, *Python, R, PySpark, Hive/SQL, Shiny/streamlit, C/C++, Kotlin/Java (basics).*

Advanced
Analytics & Modelling, *Regression and classification, experiment design/A/B testing, NLP, feature engineering, MLOps (basics), h2o, TensorFlow/Keras.*

Advanced
Design Principles, *Data structures and algorithms, computational/space complexity, vectorisation, functional programming, test-driven development, modular development, secure coding practices.*

Advanced
Solutioning, *Problem solving, product thinking, scoping ambiguous problems, charting solutions, impact discovery, strategic thinking.*

Advanced
Engineering & Platforms, *APIs and services (plumber/fastapi), debugging, web scraping (selenium), Linux, code review, Git/GitHub, relational databases, Hadoop/Hive, Kafka, AWS, CI/CD.*

Advanced
Visualisation & Storytelling, *ggplot, plotly, R Markdown, Streamlit, dashboarding, LaTeX, MS Office; building clear narratives for technical and non-technical audiences.*

Expert
Domain Knowledge, *Last-mile operations research (available-to-promise and order allocation), digital fulfilment and shipping cost optimisation, Finance, Accounting, Statistics, Regression analysis.*

Progressive
Leadership, *Mentoring and coaching, 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.*