

# RISHI SONI

## Data Scientist - Delhivery LTD

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### PROFILE SUMMARY

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- 1.5+ years of experience in solving various transportation and logistics business problems using optimization techniques.
- Expertise in **mathematical programming and optimization** (MILP, heuristics, metaheuristics) for solving large-scale logistics problems.
- Experience in building **0–1 products** from scratch to deployment, including last-mile network design and routing solutions.

### WORK EXPERIENCE

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#### Delhivery Ltd.

Gurugram, India

##### Position: Data Scientist - Operations Research

Jan'25 - Present

- Collaborated with engineering, product teams, and clients to understand project needs and deliver data-driven solutions.
- Applied expertise in Mathematical Optimization to develop efficient, data-based solutions.
- Used Python and other tools to create solutions for complex problems.
- Used Git to package Python libraries, ensuring scalability and user-friendliness.

#### Delhivery Ltd.

Gurugram, India

##### Position: Data Science- Operations Research Intern

Jun'24 – Dec'24

- Data Pipelines Development: Performed initial exploratory data analysis on last-mile data, made complete data pipelines to support routing algorithm development.
- Applied Mathematical Modeling: Utilized MILP (Mixed-Integer Linear Programming) techniques with frameworks like Google OR-Tools for optimizing last-mile delivery vehicle routing.
- Created Data pipelines for scalability.

### PROJECTS

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#### LAST MILE DISTRIBUTION CENTER OPTIMIZATION

##### DELHIVERY LTD

- As **Product Owner**, I identified the strategic need for an OR solution to overhaul the last-mile network. I then defined the scope and problem statement for optimizing existing distribution infrastructure through the **strategic relocation, merging, and opening** of new distribution centers.
- Came up with Netplan (Network Planning Tool), a **0–1 product** for strategic last-mile network design.
- Applied **Mixed-Integer Linear Programming (MILP)** for the core optimization model, enhanced with a **Genetic Algorithm** to achieve faster and more robust solutions.
- Made the solution **scalable** for large-scale deployment from and designed the complete **UI/UX using Flask and Angular** to enhance accessibility and provide a clear, understandable product interface.
- Quantified the project's impact by testing pre- vs. post-optimization scenarios, achieving **approximately 15% in last-mile cost savings**.

#### LAST MILE VEHICLE ROUTING PROBLEM

##### DELHIVERY LTD

- Optimized last-mile delivery by strategically assigning orders to riders based on their familiarity with localities and minimizing travel distance.
- Developed a clustering-based approach combined with OR-Tools VRP and heuristics to maximize operational efficiency.
- Achieved notable improvements, including a 5.2% boost in compliance and a 1.34% reduction in overall delivery distances across several DCs.

### EDUCATIONAL QUALIFICATIONS

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MS (OPERATIONAL RESEARCH)

HANSRAJ COLLEGE, DELHI UNIVERSITY

BS (ELECTRONICS SCIENCE)

DELHI UNIVERSITY

## SKILLS

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- Programming Languages Proficient: Python, SQL; Basic, MATLAB,.
- Data Science Tools Python: NumPy, Pandas.
- Optimization Tools Python: ORTools, PuLP, Pyomo, PyOptInterface; Others: AMPL.
- Optimization Solvers: Gurobi, CPLEX, Hexaly, HiGHS, CP-SAT.
- Optimization Techniques Exact: LP, IP, MIP; Heuristics; Metaheuristics: SA, GA.
- Data Visualization Tools Python: Folium, Matplotlib, Seaborn.
- Analytical Tools MS Office.

## CERTIFICATIONS AND TRAININGS

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- **Indian Institute of Technology IIT Bombay(Summer School):** Large-scale optimization with applications in logistics and transportation, covering advanced topics in operations research.  
**Skills:** Integer, Linear Optimization, Benders Decomposition, Column Generation, Dantzig-Wolfe Decomposition, Cutting Plane Methods, Robust Optimization, Heuristic Methods, Valid Inequalities.
- **MATLAB Onramp** (MathWorks): Hands-on training in MATLAB fundamentals, including data analysis, script writing, and modeling using the MATLAB environment.  
**Skills:** MATLAB Basics, Data Analysis, Programming in MATLAB
- **Excel Skills for Business: Job Simulation**  
*Goldman Sachs (via Forage)*  
Completed a simulated work experience reflecting real tasks in Excel-based financial analysis.  
**Skills:** Microsoft Excel, Data Visualization, Cash Flow Forecasting, P&L Forecasting, P&L Management

## POSITION OF RESPONSIBILITIES

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### Research Scholar – Sri Venkateswara College

#### *Unmanned Aerial Vehicle (UAV) Research Group*

- Led Simulink-based simulations for various UAV models, supporting advanced research into flight dynamics and control systems.
- Mentored junior team members in MATLAB and Simulink, facilitating skill development and contributing to the team's collective understanding of UAV technologies.

### Research Scholar – Sri Venkateswara College

#### *Electronics Circuit Analysis*

- Developed a **comprehensive Simulink MATLAB** report on electronic circuit analysis, emphasizing modeling for circuit and modular analysis in electronics.
- Specialized in exploring methods and network theorems through **diverse Simulink library** components.
- Led research enhancing Simulink's application in electronic circuit analysis, contributing to project success.