RITESH OJHA

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EDUCATION

Georgia Institute of Technology   **Atlanta, USA**
PhD in Operations Research, Industrial and Systems Engineering; GPA: 3.71/4.00   *Aug. 2019 – Expected 2023*

Georgia Institute of Technology   **Atlanta, USA**
MS in Operations Research, Industrial and Systems Engineering; GPA: 3.71/4.00   *Aug. 2018 – Expected 2020*

Indian Institute of Technology   **Kharagpur, India**
Bachelor of Technology, Industrial and Systems Engineering; GPA: 8.62/10.00   *Aug. 2013 – July. 2017*

PUBLICATIONS

- Ghadge, A., Dani, S., Ojha, R., & Caldwell, N. (2017). Using risk sharing contracts for Supply Chain Risk Mitigation: A buyer-supplier power and dependence perspective. **Computers & Industrial Engineering**, 103, 262-270.

- Ojha, R.,Tiwari, M.K.,Ghadge, A.& Bittici, U. (2018) Bayesian Network Modelling for Supply Chain Risk Propagation. **International Journal of Production Research**.

RESEARCH INTERESTS

- Integer Programming based decomposition and refinement algorithms for **Time-Dependent Models**
- Large Scale Transportation **Service Network Design Problems**

GRADUATE PROJECT

Long-Term Equipment Planning: Graduate Research Assistant   *Sep 2019 — Present*
Advisor: Prof. M. Savelsbergh, Prof. N. Boland, Prof. A. Erera

- Developing a planning methodology to effectively manage equipment fleet in anticipation of changes in demand volume for **parcel delivery companies**
- Formulated an integer programming model to optimize **equipment leasing**, **empty repositioning** and **equipment substitution** decisions

Decomposition Algorithms for Large Scale Airline Optimization Problems   *Aug 2019 — Present*
Advisor: Prof. N. Boland

- Developed an integer programming formulation for the large scale airline optimization problem with business-specific side constraints over a **time-space network**
- Building an **iterative refinement algorithm** for such large scale difficult-to-solve integer programs

Data-Driven design and operation of City Logistics Service Networks   *Jan 2019 — April 2019*
Advisor: Prof. M. Savelsbergh

- Developed a matching tool for truck movements of a logistics company to maximize cost savings with an average **savings of 39%**
- Tested **greedy randomized adaptive search procedure (GRASP)** based heuristic on the service network design problem

Patrol Officer Scheduling and Dispatch for Denver Public Schools   *Jan 2019 — July 2019*
Advisor: Prof. P. Keskinocak

- Developed an optimization framework to find **optimal shift schedule** for patrol officers to meet service demand and analysed the incremental effect of officers on **response time** through simulation

Under-Graduate Projects

Services in Indian Automobile Industry
Advisor: Prof. M.K.Tiwari

<div align="right">Jan 2017 – April 2017</div>

- Studied the impact of **service attributes on consumer demand** in the Indian automobile industry examining the complementarities or substitution between service attributes and product quality
- Created an optimization framework to maximize consumer utility with respect to business constraints and performed sensitivity analysis to demonstrate the **economic role of warranty**

Sustainable Facility Location-Allocation Decision Optimization
Advisors: Prof. M.K.Tiwari, Prof A. Ghadge

<div align="right">June 2016 – Oct 2016</div>

- Formulated a multi-objective mixed integer mathematical model for multi-echelon **forward/reverse logistics closed loop supply chain** network
- Conducted **sensistivity analysis** to assess trade-off between the conflicting objectives of minimization of total cost and emissions from transportation and opened facilities operations

Multi-Agent based Decision Models to support Logistics Network
Advisor: Prof. M.K.Tiwari

<div align="right">May 2015 – July 2015</div>

- Developed a **multi-agent** based system to model logistics and supply chain network
- Evaluated the effectiveness of model using **ant colony** optimization and **particle swarm** optimization

Work Experience

The Home Depot: Data Scientist
Space Optimization

<div align="right">**Atlanta, USA**
May 2019 — July 2019</div>

- Developed a machine learning framework to derive the impact of **bay count** and **facing changes** of SKUs on **inventory** levels
- Optimized the **Gross Margin Return on Inventory (GMROI)** and integrated the framework in the current tool

TCG Digital: Operations Research Consultant
HealthCare Analytics

<div align="right">**Kolkata, India**
Mar 2018 — July 2018</div>

- Analyzed data from **SQL database** for multiple KPIs, to develop a **ground-up** approach of validating the product and worked closely with client to statistically test and automate the validation process
- **Forecasted** the KPI values over a horizon based on **simulation** of **exponential** and **poisson** distributed variables.

Catering Forecasting in Airline Industry

<div align="right">Jan 2018 — Apr 2018</div>

- Delivered a **predictive model** to forecast the **uplift quantity of perishable food** items at the flight level using an **ensemble approach** of machine learning algorithms like **random forest, neural nets**
- Formulated heuristics to reduce the average **wastage** of food items by **25%** and **stock-outs** by **5%**

Demand Forecasting for Retail Chain

<div align="right">Nov 2017 — Mar 2018</div>

- Developed a **statistical model** to forecast product demand while considering **seasonality**, trend and spiky demand and provided a **brand level analysis** of SKUs
- Formulated a **binary integer linear program** to maximize **weighted order fill rate** while limiting **inventory** and using weights assigned to differentiate customers based on profit margin

Large Scale Optimization in Petrochemical Vertical *July 2017 — Dec 2017*

- **Optimized** the **production quantity and sequence of each polymer grade** that maximizes net contribution for the planning period of one month on **CPLEX** and used the **concert technology** in Java
- Formulated a **mixed-integer linear programming** model and implemented the **rolling horizon optimization** framework with **time scaling** feature

Awards

- Received "**Excellent**" grade on the module "**Supply Chain Network: Modelling and Analysis**" the International Summer and Winter term held at IIT Kharagpur in June 2015

Extra Curricular Activities

- Student Mentor, Student Welfare Group: Mentored 5 freshmen through numerous facets of college
- Cleared the B-Certificate exam as a National Cadet Corp of 1 Bengal EME COY 2013-2015 at IIT
- Pivotal member of the hockey team of MMM Hall of Residence at the general championship 2013-2014
- Member of the playing XI of the runner-up team in 2009 and winning team in 2008 at The Maj. R.K.Von Goldstein Memorial Inter-school cricket tournament

SKILLS

- **Coursework**: Linear Optimization, Probabilistic Models, Mathematics of OR, Regression and Time Series Modeling, Supply Chain Optimization, Predicitve Modelling, Economic Decision Analysis, Risk Management

- **Softwares**: IBM ILOG CPLEX (Concert Technology, Callable Libraries), GUROBI, XPRESS, MATLAB, Python, R