308 IIM Ahmedabad
Gujarat, India
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DEBJIT ROY

EMPLOYMENT

Professor of Operations Management (March 2020-Present)
Associate Professor of Operations Management (September 2014-February 2020)
Assistant Professor of Operations Management (March 2012-August 2014)
Department of Production and Quantitative Methods
Indian Institute of Management
Ahmedabad, Gujarat, India

Associate Professor in Operations Management (March 2017-present),
Postdoctoral Researcher (August 2011-February 2012)
Department of Technology and Operations Management
Rotterdam School of Management
Erasmus University, Netherlands

Visiting Professor in Technology and Operations (March 2020-April 2020)
Visiting Associate Professor in Technology and Operations (August 2018-May 2019)
Stephen M. Ross School of Business
University of Michigan, Ann Arbor, USA

EDUCATION

University of Wisconsin-Madison, Madison, Wisconsin, USA
Ph.D., Industrial and Systems Engineering, July 2011
Major: Decision Science/Operations Research
Minor: Computer Science

M.S., Manufacturing Systems Engineering, December 2007

Indian Institute of Science, Bangalore, India
M.Sc. (Engineering), Management Studies, January 2002

National Institute of Foundry and Forge Technology, Ranchi, India
B.Tech., Manufacturing Engineering, May 2000

ACADEMIC AWARDS AND HONORS

InsideIIM Professor of the Year, 2020
The IIMA Alumni VVEF Outstanding Researcher Award (2020) awarded on the 55th IIMA convocation.
RSM Innovative Teaching Award from Erasmus University, 2019
Honorable Mention for the Jack Meredith Best Paper Award in Journal of Operations Management, 2019
Best IISE Annual Conference Paper Award (2019) in Facilities Design and Planning Track

Invited as an inaugural speaker in the Logistics & Supply Chain track of the IISE 2019 annual conference

Erasmus Research Institute of Management (ERIM) – High Performing Research Member (2017, 2018)

The IIMA Alumni VVEF Outstanding Researcher Award (2018) awarded on the 53rd IIMA convocation.

Honorable Mention designation (2016) in the IIE Transactions Focused Issue on Design and Manufacturing Best Applications Paper Award Competition

Listed as a Subject Matter Expert in Decision Sciences Area (2016) in Research productivity in management schools of India during 1968-2015: A directional benefit-of-doubt model analysis, Omega, 2016, http://dx.doi.org/10.1016/j.omega.2016.02.004.

Amity Academic Excellence Award (2013) for contributions to Production and Quantitative Management

Best IIE Annual Conference Paper Award (2011) in Facility Logistics Track

Wunsch Material Handling First Prize (2011) for the best paper on Material Handling, College of Engineering, University of Wisconsin-Madison

Tiffin Metal Products Honor Scholarship (2010-2011), Material Handling Education Foundation, Inc.

Wunsch Material Handling First Prize (2010) for the best paper on Material Handling, College of Engineering, University of Wisconsin-Madison

AS/RS Product Section Honor Scholarship (2009-2010), Material Handling Education Foundation, Inc.

Wunsch Material Handling First Prize (2009) for the best paper on Material Handling Topics, College of Engineering, University of Wisconsin-Madison

Vinod K. and J. Gail Sahney Scholarship (2008) for academic excellence, Department of Industrial and Systems Engineering, University of Wisconsin-Madison, USA

Prof. B.G. Raghavendra Medal (2002) for the best Master's thesis in Operations Research, Indian Institute of Science, Bangalore, India

Young Engineering Fellowship Award (1999) for academic excellence, Indian Institute of Science, Bangalore, India

PROFESSIONAL AWARDS

GE Six Sigma Black Belt Certification (2005)
GE Train the Trainer Certification (2004)
Customer Award (2002) from GE Rail Car Services, Chicago, IL for exemplary performance
GE Six Sigma Green Belt Certification (2002)

RESEARCH INTERESTS

Applications	Logistics and service systems including container terminals, automated warehouses, vehicle rental, trucking, dine-in restaurants.
Methods	Stochastic processes, Queuing theory, Optimization, Simulation, Empirical

RESEARCH EXPERIENCE

Visiting Researcher, **Rotterdam School of Management, Erasmus University** (April-May 2013, April-May 2014, April-May 2015, May-June 2016)
Advising PhD students who are working on distribution warehouse management, and independent research on container terminals, warehouse automation and robotization.

Doctoral Research, **University of Wisconsin-Madison**

Thesis   *Design and Analysis of Unit-load Warehouse Operations using Autonomous Vehicles*

Master's Research, **Indian Institute of Science**

Thesis   *Stochastic Models for Stock Rationing in Multi-echelon Supply Chains*

JOURNAL PUBLICATIONS

G. L. Kumawat, D. Roy, R. de Koster, I.J.B.F. (Ivo) Adan, Stochastic Modelling of Parallel Process Flows in Intra-logistics Systems with an Application to a Container Terminal, *European Journal of Operational Research* (2020)

G. L. Kumawat and D. Roy, AGV or Lift-AGV? Performance Trade-offs and Design Insights for Container Terminals with Robotized Transport Vehicle Technology, *IISE Transactions* (2020)

Jan-Kees van Ommeren, Niek Baer, Nishant Mishra, and Debjit Roy, Batch service systems with heterogeneous servers, *Queueing Systems and Applications* (2020)

D. Roy, R. de Koster, R. Bekker, Modeling and Design of Container Terminal Operations, *Operations Research* (2019)

T. Lamballais, D. Roy, R. de Koster, Inventory Allocation in Robotic Mobile Fulfillment Systems, *IISE Transactions* (2019)

D. Roy, and V. Ravikumaran, An Extensive Evaluation of CONWIP-Card Controlled and Scheduled Start Time Based Production System Designs, *Journal of Manufacturing Systems* (2018)

D. Roy, S. Nigam, R. de Koster, I. Adan, and J. Resing, Robot-Storage Zone Assignment Strategies in Mobile Fulfillment Systems, *Transportation Research Part E: Logistics and Transportation Review* (2018)

E. Tappia, D. Roy, R. de Koster, M. Melacini, Integrated Storage-order Picking Systems: Technology, Performance Models, and Design Insights, *European Journal of Operational Research* (2018)

K. Azadeh, D. Roy, R. de Koster, Design, Modeling, and Analysis of Vertical Robotic Storage and Retrieval Systems, *Transportation Science* (2018)

K. Azadeh, R. de Koster, D. Roy, Robotized and Automated Warehouse Systems: Developments and Research Opportunities, *Transportation Science* (2018)

J. de Vries, D. Roy, R. de Koster, Worth the wait? How restaurant waiting time influences customer behavior and revenue, *Journal of Operations Management*, (2018)

S. S. Mofidi, J. Pazour, and D. Roy, Proactive vs. Reactive Order-Fulfillment Resource Allocation for Sea-based Logistics, *Transportation Research Part E: Logistics and Transportation Review,* 114, 66-84, (2018)

V. Dhingra, G. Kumawat, D. Roy, and R. de Koster, Solving Semi-open Queuing Networks with Time-varying Arrivals: An Application in Container Terminal Landside Operations, *European Journal of Operational Research,* 267(3), 855-876 (2018)

D. Roy and R. de Koster, Stochastic Modeling of Unloading and Loading Operations at a Container Terminal using Automated Lifting Vehicles, *European Journal of Operational Research,* 266(3), 895-910, (2018)

F. Tornese , J. A. Pazour, B. K. Thorn , D. Roy, A. L. Carrano, Investigating the environmental and economic impact of loading conditions and repositioning strategies for pallet pooling providers, *Journal of Cleaner Production,* 172, 155-168 (2018)

A. Kumar, D. Roy, V. Verter, and D. Sharma, Integrated Fleet Mix and Routing Decision for Hazmat Transportation: A Developing Country Perspective, *European Journal of Operational Research,* 264(1), 225-238 (2018)

S. Saini, D. Roy, and R. de Koster, A Stochastic Model for the Throughput Analysis of Passing Dual Yard Cranes, *Computers & Operations Research,* 87, 40-51 (2017)

D. Roy, A. Krishnamurthy, S.S. Heragu and C.J. Malmborg, A Multi-tier Linking Approach to Analyze Performance of Autonomous Vehicle-based Storage and Retrieval Systems, *Computers & Operations Research,* 83, 173-188 (2017)

A. Gupta, D. Roy, R. de Koster, and S. Parhi, Optimal Stack Layout in a Sea Container Terminal with Automated Lifting Vehicles*, International Journal of Production Research,* 55(13), 3747-3765 (2017)

J. de Vries, R. de Koster, S. Rijsdijk, D. Roy. Determinants of Safe and Productive Truck Driving: Empirical Evidence from Long-haul Cargo Transport, *Transportation Research Part E: Logistics and Transportation Review,* 97, 113–131 (2017)

T. Lamballais, D. Roy, R. de Koster. Estimating Performance in a Mobile Fulfillment System**.** *European Journal of Operational Research,* 256(3), 976–990 (2017)

N Mishra, D Roy, Jan-Kees van Ommeren, A Stochastic model for inter-terminal container transportation, *Transportation Science,* 51(1), 67-87 (2017)

E. Tappia D. Roy, R. de Koster, M. Melacini, Modeling, Analysis, and Design Insights for Compact Storage Systems with Autonomous Shuttles, *Transportation Science,* 51:1 , 269-295 (2017)

V. Dhingra, D. Roy, and R. de Koster, A Cooperative Quay Crane-based Stochastic Model to Estimate Vessel Handling Time, *Flexible Services and Manufacturing,* 29(1), 97–124 (2017)

D. Roy, Carrano, A.L., Pazour, J.A., and Gupta, A., Cost-effective pallet management strategies, *Transportation Research Part E: Logistics and Transportation Review,* 93 (September): 358-371 (2016)

F. Tornese, A. Carrano, J. Pazour, B. Thorn, D. Roy, Carbon footprint analysis of pallet remanufacturing, *Journal of Cleaner Production*, 126, 630–642 (2016)

D. Roy, A. Bandyopadhyay, and P. Banerjee, A Nested Semi-Open Queuing Network Model for Analyzing Dine-in Restaurant Performance, *Computers & Operations Research,* 65, 29–41 (2016)

V. Dhingra and D. Roy, Modeling Emergency Evacuation with Time and Resource Constraints: A Case Study from Gujarat, *Socio-Economic Planning Sciences,* 51(September): 23-33 (2015)

D. Roy; A. Gupta, R. de Koster, A Non-linear Traffic-flow based Queuing Model to Estimate Container Terminal Throughput with AGVs*, International Journal of Production Research,* 54(2), 472-493, (2016).

D. Roy, Semi-open Queuing Networks: A Review of Stochastic Models, Solution Methods, and New Research Areas, *International Journal of Production Research,* 54(6) 1735-1752, (2016).

D. Roy, A. Krishnamurthy, S.S. Heragu and C.J. Malmborg. A Simulation Study of Blocking Effects in Warehouse Systems with Autonomous Vehicles, *European Journal of Industrial Engineering*, 10(1), 51 - 80 (2016).

A. H. Gharehgozli, D. Roy, R. de Koster. Sea Container Terminals: New Technologies and OR Models, *Maritime Economics and Logistics,* 18(2): 103-140 (2016).

J.A. Pazour and D. Roy , Analyzing rental vehicle threshold policies that consider expected waiting times for two customer classes, *Computers and Industrial Engineering*, 80: 80-96, (2015).

D. Roy, A. Krishnamurthy, S.S. Heragu and C.J. Malmborg. Queuing Models to Analyze Dwell-point and Cross-aisle Location in Autonomous Vehicle-based Warehouse Systems, *European Journal of Operational Research*, 242 (1): 72–87 (2015).

A.L. Carrano, J. A Pazour, D. Roy, and B.K. Thorn, Selection of Pallet Management Strategies Based on Carbon-equivalent Emissions Impact, *International Journal of Production Economics,* 164 (June): 258-270 (2015)

M. Gorman, J.P. Clarke, A. Gharehgozli, M. Hewitt, R. de Koster, and D. Roy, State of the Practice: Application of OR/MS in Freight Transportation, *Interfaces,* 44(6): 535 – 554, (2014).

D. Roy, A. Krishnamurthy, S.S. Heragu and C.J. Malmborg. Stochastic Models for Unit-Load Operations in Warehouse Systems with Autonomous Vehicles, *Annals of OR,* 231(1), 129–155 (2015).

D. Roy and N.R.S. Raghavan. A Constrained Nash Bargaining Approach to the Stock Rationing Problem in Multi-echelon Supply Chains, *The International Journal of Advanced Manufacturing Technology,* 72(5-8), 571-587 (2014).

D. Roy, J.A. Pazour, and R. de Koster. A Novel Approach for Designing Rental Vehicle Repositioning Strategies, *IIE Transactions,* 46:9, 948-967 (2014).

A. Gupta, D. Roy, and J.A. Pazour, Estimating Waiting Time Probabilities in a Network of GI/G/c Queues with Application in Service Systems, *International journal on Automation and Logistics,* 1 (2), 150 - 175 (2015).

D. Roy, A. Krishnamurthy, S.S. Heragu and C.J. Malmborg. Blocking Effects in Warehouse Systems with Autonomous Vehicles, *IEEE Transactions on Automation Science and Engineering*, 11 (2), 439 – 451 (2014).

A. Kumar, D. Roy, and M.K. Tiwari. Optimal partitioning of vertical zones in vehicle-based warehouse systems, *International Journal of Production Research,* 52(5), 1285-1305, (2014)

D. Roy, J. Sebastian, and D. Sharma, Fleet Sizing for Transporters with Seasonal Demands, *International Journal on Automation and Logistics,* 1(1), 105 – 115 (2013)

D. Roy, A. Krishnamurthy, S.S. Heragu and C.J. Malmborg. Performance Analysis and Design Tradeoffs in Warehouses with Autonomous Vehicle Technology, *IIE Transactions*. 44 (12): 1045-1060 (2012)

N. A. Duffie, D. Roy and L. Shi. Dynamic Behavior of Autonomous Work Systems in Production Networks with Local Capacity Control. *Annals of the CIRP*, 57 (1): 463-466 (2008)

N.R.S. Raghavan and D. Roy. A Stochastic Petri Net Approach for Inventory Rationing in Multi-Echelon Supply Chains. *Journal of Heuristics*, 11(5-6): 421-446 (2005)

D. Roy, U.M.B.S. Sarma, S.K. Mukhopadhyay and M.K. Tiwari. A Part Classification System Using a Shape-Analysis Based Heuristic Approach. *The International Journal of Advanced Manufacturing Technology*, 21(5): 355-364 (2003)

M. K. Tiwari and D. Roy. Solving a Part Classification Problem using Simulated Annealing-like Hybrid Algorithm. *Robotics and Computer-Integrated Manufacturing*, 19(5): 415-424 (2003)

M.K. Tiwari and D. Roy. Application of an Evolutionary Fuzzy System for the Estimation of Workforce Deployment and Cross training in an Assembly Environment. *International Journal of Production Research*, 40(18): 4651-4674 (2002)

M. K. Tiwari and D. Roy. Minimization of Internal Shrinkage in Casting using Synthesis of Neural Networks. *International Journal of Smart Engineering System Design,* 4(3): 205-214 (2002)

WORKING PAPERS

V. Bansal, D. Roy; J. Pazour,, Batching Decisions for E-Commerce Order Fulfillment: Technology, Models, and Data Insights, (under revision)

A. Prabu PM, D. Roy, P. Venkateshan, Refuse or Accept? Analysis of Taxi Driver Operating Strategies in E-hailing Platforms (submitted)

G. Dutta, D. Roy, R. Kumar, S.R. Natesan, and S. Jayaswal, Efficient Distribution of Compressed Natural Gas for Sabarmati Gas Limited Fueling Stations in Gujarat, India with Simulation (submitted)

T. Lamballais, M. Merschformann, D. Roy, L. Suhl, R. de Koster, Dynamic Policies for Resource Reallocation in a Robotic Mobile Fulfillment System with Time-Varying Demand (submitted)

G. L. Kumawat and D. Roy, A new solution method for linking multi-stage semi-open queuing networks: An application in robotized compact storage system, (submitted)

D. Roy and J. De Vries, Rejection is a challenge: Leveraging customer segmentation in restaurant reservations to boost revenue (submitted)

D. Roy, Jan-Kees van Ommeren, R. de Koster, A. Gharehgozli, Effect of service priority and resource synchronization choices on landside terminal queues: Exact analysis and approximations (submitted)

V. Bansal and D. Roy, Stochastic Modeling of Multi-line Orders in Integrated Storage-Order Picking System (submitted)

K. Azadeh, D. Roy, R. de Koster, Dynamic Human-Robot Collaborative Picking Strategies (submitted)

BOOK CHAPTERS

D. Roy and R. de Koster. Optimal Stack Layout Configurations at Automated Container Terminals using Queuing Network Models, Springer Handbook on Container Terminal Handling, Forthcoming.

D. Roy and V. Bansal, An Integrated Network Modeling Framework for Analysis of Multi-line Order Pick Systems, International Material Handling Colloquium, July 23-27, 2018, Savannah, GA, USA

T. Lamballais, D. Roy, and R. de Koster, A novel approach to analyze inventory allocation decisions in Robotic Mobile Fulfillment Systems, International Material Handling Colloquium, June 12-14, 2016, Kalsruhe, Germany

D. Roy and H. Joshi, Evaluating Transaction Pairing Strategies for Vehicle-based High-density Storage Systems, International Material Handling Colloquium, June 12-14, 2016, Kalsruhe, Germany

V. Dhingra, D. Roy, and R. de Koster, A Two-level Stochastic Model to Estimate Vessel Sojourn Time, Accepted for publication in the Progress of 13th Material Handling Research, 2014, Editors: Andres Carrano, René de Koster, Benoit Montreuil, Kevin Gue, Michael Ogle, Jeff Smith

Shobhit Nigam, Debjit Roy, René de Koster, Ivo Adan, "Analysis of Class-based Storage Strategies for the Mobile Shelf-based Order Pick System", Accepted for publication in the Progress of 13th Material Handling Research, 2014, Editors: Andres Carrano, René de Koster, Benoit Montreuil, Kevin Gue, Michael Ogle, Jeff Smith

A. Krishnamurthy, D. Roy and S. Bhat. Performance Trade-offs in Layouts for Distribution of Supplies at Relief Centers, Humanitarian & Relief logistics: Research issues, case studies and future trends, published by Springer under the Series Operations Research/ Computer Science (ORCS). (Accepted October 2012)

D. Roy and R. de Koster. Optimal Design of Container Terminal Layout, International Material Handling Research Colloquium, Gardanne, France, 25 - 28 June 2012.

A. Krishnamurthy, D. Roy, and S. Bhat. Performance Trade-offs in Layouts for Relief Centers. International Material Handling Research Colloquium, Gardanne, France, 25 - 28 June 2012.

A. Krishnamurthy, D. Roy, S.S. Heragu and C.J. Malmborg. Blocking Effects on Performance of Warehouse Systems with Autonomous Vehicles. *Proceedings of the 11th International*

Material Handling Research Colloquium (IMHRC), Milwaukee, WI, USA, June 21-25, 2010.

TECHNICAL PAPERS

D. Roy, Improvement Strategies to Cut Lead Times, UPKRAM, April-June 2012, 19-25.

D. Roy. Aging Baby Boomers: Workforce Challenges and Ergonomic Solutions for Order Picking Operations, 2011. *(Awarded first prize in Wunsch technical paper writing contest, College of Engineering, University of Wisconsin-Madison)*

D. Roy. Magic Shelves: Boosting E-retail Sales by Reducing Order Picking Inefficiencies, 2010. *(Awarded first prize in Wunsch technical paper writing contest, College of Engineering, University of Wisconsin-Madison)*

D. Roy. Autonomous Vehicle Technology: Meeting the Order Fulfillment Challenge of the Future Warehouse by Offering Greater Flexibility and Increased Responsiveness, 2009. *(Awarded first prize in Wunsch technical paper writing contest, College of Engineering, University of Wisconsin-Madison)*

D. Roy. Comparison of Six Sigma and Quick Response Manufacturing: Select the Best Tool for Lead time Reduction, 2006. (Technical Report, Center for Quick Response Manufacturing, University of Wisconsin-Madison-Madison)

BOOKS

D. Roy, G. Raghuram, R. Jain, S. Tripathi, K. Sharda, Trucking Business Management: Cases and Concepts, Mc-GrawHill Publications, 2016. (Revised in 2018 with additional cases and chapters)

REFEREED CONFERENCE PUBLICATIONS

D. Roy and A. Raman, An Analytical Modeling Framework for Determining the Optimal Table Mix in Restaurants, *15th IFAC Symposium on Information Control Problems in Manufacturing,* May 11-13, 2015, Ottawa Convention Centre, Ottawa, Canada

N. Kumar, R.P. Agrahari, and D. Roy, Review of Green Supply Chain Processes, *15th IFAC Symposium on Information Control Problems in Manufacturing,* May 11-13, 2015, Ottawa Convention Centre, Ottawa, Canada

D. Roy and V. Dhingra, Performance Analysis of Warehouse Systems with Dynamic Batching, *15th IFAC Symposium on Information Control Problems in Manufacturing,* May 11-13, 2015, Ottawa Convention Centre, Ottawa, Canada

D. Roy, J.A. Pazour, and R. de Koster. Design of repositioning policies to maximize rental profits, *POMS World Conference,* Amsterdam, July 1-5, 2012.

D. Roy and A. Krishnamurthy. Performance Analysis of Unit-load Transfer Systems in Multi-Tier Warehouses with Autonomous Vehicles. *Proceedings of the 44th CIRP Conference on Manufacturing Systems*, Madison, WI, USA, June 1-3, 2011.

D. Roy and A. Krishnamurthy. Queuing Models for Unit-Load Warehouse Systems using Autonomous Vehicles. *Proceedings of the 8th Stochastic Models of Manufacturing and Service Operations Conference*, Kuşadasi, İzmir, Turkey, May 28-June 2, 2011.

D. Roy and A. Krishnamurthy. Improving Throughput Capacity in Multi-tier Warehouses with Autonomous Vehicles. *Proceedings of the 2011 Industrial Engineering Research Conference*, Reno, NV, USA, May 21-25, 2011.

D. Roy, A. Krishnamurthy, S.S. Heragu and C.J. Malmborg. Vehicle Interference Effects in Warehousing Systems with Autonomous Vehicles. *Proceedings of IEEE Conference on Automation Science and Engineering*, Toronto, Canada, August 21-24, 2010.

D. Roy, A. Krishnamurthy, S.S. Heragu and C.J. Malmborg. Design Insights for an Autonomous Vehicles-based Storage and Retrieval System. *Proceedings of the 2009 Industrial Engineering Research Conference*, Miami, FL, USA, May 30-June 3, 2009.

D. Roy, A. Krishnamurthy, S.S. Heragu and C.J. Malmborg. Design Insights for Warehouses based on Autonomous Vehicle Technology (Extended Abstract), *Proceedings of the 2009 M&SOM Conference*, Boston, MA, USA, June 28-30, 2009.

A. Krishnamurthy, D. Roy, S.S. Heragu and C.J. Malmborg. Design and Operational Insights for Autonomous Vehicle based Storage and Retrieval Systems, *Proceedings of the 2009 International Conference on Value Chain Sustainability*, Louisville, KY, USA, October 19-21, 2009.

D. Roy, A. Krishnamurthy, S.S. Heragu and C.J. Malmborg. Impact of zones on Throughput and Cycle Times in Warehouses with Autonomous Vehicles and Retrieval System, *Proceedings of IEEE Conference on Automation Science and Engineering*, Bangalore, India, August 22-25, 2009.

D. Roy and N.R.S. Raghavan. A Nash Bargaining Solution to the Supply Rationing Problem, *Proceedings of International Conference on Energy, Automation and Information Technology*, IIT, Kharagpur, India, December 8-12, 2001.

D. Roy, M.K. Tiwari, R.K. Ohdar and R. Shankar. Evaluation of Supplier Performance: An Approach Based on Evolutionary Fuzzy Systems, *Proceedings of First Global Conference on Flexible System Management*, New Delhi, India, December 17-20, 2000.

U.M.B.S. Sarma, D. Roy, U.P.S Bhushan, M.K. Tiwari, and R. Shankar. Resolving Complexities of Synchronization Issues of a Supply Chain using Simulated Annealing Based Six Sigma Constrained Approach, *Proceedings of First Global Conference on Flexible System Management*, New Delhi, India, December 17-20, 2000.

M.K. Tiwari, S.K. Tiwari, D. Roy, N.K. Vidyarthi, S.Kameshwaran, A Genetic Algorithm Based Approach to Solve Process Plan Selection Problems, Proceedings of the Second International Conference on Intelligent Processing and Manufacturing of Materials, Honolulu, HI , USA, July 10-15 1999.

CONFERENCE PRESENTATIONS (Only Abstracts or Extended Abstracts)

A. Sobhanan, G.L. Kumawat, D. Roy, and S. Krishnamoorthy, Dynamic allocation of e-commerce orders to order-fulfilment centres with due date constraints, 52nd Annual Convention of ORSI & International Conference, IIM Ahmedabad, December 15-18, 2019

D. Roy, Keynote Talk, Trucking Business in India: Supply Chain Challenges and Research Insights, 6th International Workshop on Sustainable Road Freight, 5th December, 2019, University of Cambridge, 2019

A. Roy, D. Roy, Designing Service Systems in the Age of Yelp: Incorporating Reviews in Queueing Decisions, Informs Annual Meeting 2019, Seattle

V. Bansal, D. Roy, Stochastic Model for Integrated Storage-Order Picking System with Multi-Line Orders, Informs Annual Meeting 2019, Seattle

Y. Dong, R. de Koster, D. Roy, Y. Yu, Dynamic Customer Allocation and Charging Policies For Shared Autonomous Electric Vehicles, Informs Annual Meeting 2019, Seattle

D. Roy, E. Belavina, N. Kallus, K. Girotra, A Predictive-prescriptive Model For Food Allocation, Informs Annual Meeting 2019, Seattle

G. L. Kumawat, D. Roy, F. Papier, Dynamic Capacity Allocation Under Lost Sales and Service Dependent Demand, Informs Annual Meeting 2019, Seattle

J. De Vries, D.Roy, Operational Restaurant Policies and Customer Behavior, POM Conference 2019

K. Azadeh, D. Roy, R. De Koster, Dynamic Order Pick Strategies in a Human-Robot Collaborative Environment, POM Conference 2019

D. Roy, E. Belavina, N. Kallus, K. Girotra, A Predictive- Prescriptive Model for Food Allocation, , POM Conference 2019

A. Prabu, A. Vakharia, D. Roy, P. Venkateshan, Capacity Decisions in an e-Hailing Platform, POM Conference 2019

A. Prabu PM, D. Roy, P. Venkateshan, Refuse or Accept? Analysis of Taxi Driver Operating Strategies in E-hailing Platforms, POM Conference, , Houston, TX 4-7 May 2018

J. de Vries, D. Roy, R. de Koster, Operational Restaurant Policies and Customer Behavior, POM Conference, , Houston, TX 4-7 May 2018

A. Gharehgozli, D. Roy, A Mixed Tactical and Operational Framework for Landside Container Terminal Operations, , POM Conference, , Houston, TX 4-7 May 2018

 D. Roy, Modeling parallel resource movements in intra-logistics systems, 1st 1st National Conference on Operations Management and Logistics (OML), 12-13 April 2018

D. Roy, Integrated order picking systems for e-commerce fulfilment: Technology, performance models, and design insights, ISB – POMS Workshop, ISB Campus Hyderabad, 14-15 December 2017

D. Roy, G. Kumawat, Modeling Parallel Process Flows in Intra-logistics Systems, INFORMS Annual Meeting, Houston, TX 22-25 October 2017.

K. Azadeh, D. Roy, R. de Koster, Design Challenges and Performance Analysis of the AGV-pick System, INFORMS Annual Meeting, Houston, TX 22-25 October 2017.

D. Roy, Jan-Kees van Ommeren, A. Gharehgozli, Modeling Service Priority at Landside Terminal Resources: Exact Analysis and Approximations, INFORMS Annual Meeting, Houston, TX 22-25 October 2017.

D. Roy, E. Belavina, Food Distribution and Food Waste in Food for Education Programs, INFORMS Annual Meeting, Houston, TX 22-25 October 2017.

D. Roy, Jan-Kees Van Ommeren, A. Gharehgozli, Loading And Unloading Trains And Trucks At Container Terminals. INFORMS Annual Meeting, Nashville, TN 12-16 October 2016

J. de Vries, R. de Koster, S. Rijsdijk, D. Roy. Which Drivers Should Transport Your Cargo? Empirical Evidence from Long-Haul Transport. POM 27th Annual Conference, Orlando, FL May 6-9 2016

D. Roy, J. Pazour, and V. Dhingra, Batching Decisions for E-Commerce Order Fulfilment: Technology, Models, and Data Insights, 5th INFORMS Transportation Science and Logistics Society Workshop, June 19-22, 2016, Georgia Tech

K. Azadeh, D. Roy, and R. de Koster, Design Challenges and Performance Analysis of the Vertical Robotic Storage and Retrieval System, 5th INFORMS Transportation Science and Logistics Society Workshop, June 19-22, 2016, Georgia Tech

T. Lamballais, D. Roy, and R. de Koster, A novel approach to analyze inventory allocation decisions in Robotic Mobile Fulfillment Systems, 8th International Scientific Symposium on Logistics, June 15-16, 2016, Kalsruhe Germany

D. Roy, S. Saini, R. de Koster, Role of transaction type and mix on dual yard cranes performance, 8th International Scientific Symposium on Logistics, June 15-16, **2016,** Kalsruhe Germany

D. Roy and V. Dhingra, Performance Analysis of Warehouse Systems with Dynamic Batching, 15th IFAC Symposium on Information Control Problems in Manufacturing, May 11-13, 2015, Ottawa Convention Centre, Ottawa, Canada

D. Roy and V. Dhingra, Analysis of Static vs. Dynamic Batching in Order-pick Operations 18th CEMS Saint-Louis Workshop on Logistics and Supply Chain Management, taking place on April 30, 2015 Saint-Louis University in Brussels.

D. Roy and D. Ghosh, Rethinking Facility Logistics: Technology, Models, and Insights, IIMA Society Conference 2014, June 27-28, 2014

N. Mishra, D. Roy, J. K. Van Ommeren, A Stochastic Model for Inter-terminal Container Transportation, The 2014 International Conference on Logistics and Maritime Systems, "Smart Future Logistics", 27 August 2014 - 29 August 2014

R. de Koster, D. Roy, V. Dhingra, "Effect of Quay and Stack Crane Service Time Variability on Vessel Sojourn Times", The 2014 International Conference on Logistics and Maritime Systems, "Smart Future Logistics", 27 August 2014 - 29 August 2014

K.S. Duisters, D. Roy, I.J.B.F. Adan, "An Efficient Analytical Approach for Estimating Throughput in Sea Container Terminals, 27 August 2014 - 29 August 2014

Jan-Kees van Ommeren, N. Baer, N. Mishra, D. Roy, "Batch Service Systems with Heterogeneous Servers", First European Conference on Queueing Theory , Ghent, August 20-22, 2014

Mishra, N., Roy, D., and van Ommeren, J., (2013). Queuing Approximations for the Inter-terminal Container Transportation (ITT) Problem. INFORMS Annual Meeting, Minneapolis, 6-9 October 2013.

Roy, D., and Gupta, A., (2013). Traffic Flow-based Analytical Model for Fleet and Buffer Sizing at Sea Container Terminals. INFORMS Annual Meeting, Minneapolis, 6-9 October 2013.

Roy, D., and Kumar, A., (2013). Optimal Partitioning of Vertical Zones in Vehicle-based Warehouse System. INFORMS Annual Meeting, Minneapolis, 6-9 October 2013.

Roy, D., and Nigam, S., (2013). Queuing Models for Mobile Rack-based Order-pick Systems.INFORMS Annual Meeting, Minneapolis, 6-9 October 2013.

S. Nigam, D. Roy and R. de Koster, Analyzing Alternate Vehicle Allocation Strategies in Mobile Rack-based Order-pick Systems, OR13 conference, Erasmus University, The Netherlands, 3-6 September 2013

D. Roy and R. de Koster, Optimizing stack layouts in container terminals using stochastic models, National University of Singapore, 3rd International Conference on Logistics and Maritime Systems, 12-14 September 2013

J.A. Pazour and D. Roy, Modeling Priority Service and Repositioning Strategies, IIE Annual Conference 2013, Puerto Rico, May 18-22 2013

S. Nigam and D. Roy. Analyzing Alternate Storage Strategies in Mobile Rack-Based Order-Pick System. 3rd IIMA International Conference on Advanced Data Analysis, Business Analytics and Intelligence, IIM Ahmedabad, April 13 - 14, 2013, Ahmedabad, India

A. Gupta and D. Roy. Estimating Waiting Time Probabilities in a Network of Queues with Stationary Arrival Rates" in the "XVI Annual International Conference of Society of Operations Management" at IIT Delhi, December 22-23 December, 2012.

D. Roy and R. de Koster. Modeling Overlapping Container Terminal Operations, INFORMS, Phoenix, AZ, October 14-17 2012.

D. Roy and R. de Koster. Design Insights for Container Terminal Operations, POMS, Chicago, IL, April 20-23 2012.

D. Roy and R. de Koster. Joint Modeling of Loading and Unloading Operations at a Container Terminal. International Conference on Logistics and Maritime Systems (LOGMS), University of Bremen Germany from August 22-24 2012.

D. Roy and A. Krishnamurthy. Stochastic Models of AVS/RS with Vertical Conveyors. *INFORMS*, Charlotte, NC, November 13 - 16 2011.

D. Roy and A. Krishnamurthy. Analyzing Flexible Design Configurations in Autonomous Vehicles-based Warehouses. *INFORMS*, Austin, TX, November 7-10, 2010.

D. Roy, A. Krishnamurthy, S.S. Heragu and C.J. Malmborg. Vehicle Interference Effects in Autonomous Vehicles based Warehousing Systems. *INFORMS*, San Diego, CA, October 11-14, 2009.

D. Roy, A. Krishnamurthy, S.S. Heragu and C.J. Malmborg. Design Insights for an Autonomous Vehicles-based Storage and Retrieval System. 23rd European Conference on Operational Research, Bonn, Germany, July 5 - 8, 2009.

D. Roy and K. Brown. MCT: Map Your Lead Times - See the Opportunities. *Proceedings of 9th International Conference on Quick Response Manufacturing*, Madison, WI, June 14-16, 2009.

D. Roy, A. Krishnamurthy, S.S. Heragu and C.J. Malmborg. Effect of Cross-aisle and Zoning on Performance of an Autonomous Vehicles-based Storage and Retrieval System. *POMS*, Orlando, FL, May 1-4, 2009.

D. Roy and A. Krishnamurthy. Performance Analysis of Alternate Designs for Autonomous Vehicle based Storage and Retrieval Systems. *INFORMS*, Washington, DC, October 12-15, 2008.

Research Grant Awards

IIM Ahmedabad Research and Publications Office Research Grants

- *Social Interactions: Increases or Diminishes Productivity (Amount: INR 200000), IIMA Seed grant, 2018*
- *Stochastic Modeling and Design Insights for Container Terminal Operations (Amount: INR* 190000), Status: Complete
- *Improving throughout Capacity in Distribution Warehouses Using Variants of Vehicle-based Technologies (Amount: INR* 190000), Status: Complete
- *Closed-Loop Inventory Models for the Pallet Supply Chains (Amount: INR* 248500), Status: Complete
- *Estimating Vessel Sojourn Times in Unloading Operations at Sea Container Terminals (Amount: INR* 248000), Status: Complete
- *Stochastic Modeling of Restaurant Operations (Amount: INR* 248000), Status: Ongoing
- *Modeling Landside Operations in a Container Terminal with Non-stationary Arrivals(Amount: INR* 248000), Status: Ongoing

UKIERI UGC Thematic Awards-UGC-2013-14/067

Green Design to Green Disposal (Partner University: Sheffield University Management School, The University of Sheffield, Conduit Road, Sheffield S10 1FL, UK.) (IIM Ahmedabad portion, INR 2200000)

Indo-Dutch Grant

Data Driven E-Commerce Order Fulfillment (Partner University: TU Eindhoven)

Estimated amount: 500,000 Euro (to be shared)

TEACHING EXPERIENCE
MBA Teaching, IIM Ahmedabad

Course title: Probability and Statistics –I, Logistics Management, Operations Management-I, Operations Management – II, Manufacturing Operations Management, Quantitative System Performance
Feedback: 9/10 (on average)

Executive MBA Teaching, IIM Ahmedabad
Course title: Setting and Delivering Service Levels, Logistics Management
Feedback: 9/10 (on average)

MBA Teaching, Rotterdam School of Management
Course title: Advanced Supply Chain Management (co-taught with Prof. Finn Wynstra)
Feedback: 4.8/5 (on average)

Masters in SCM, Rotterdam School of Management
Course title: Managing performance of manufacturing and service systems
Feedback: 4.5/5 (on average)

EXECUTIVE EDUCATION
Facilitator, **Management Development Programme at IIM Ahmedabad (2012-Present)**
- o Warehouse Design and Management
- o Delivering Logistics Solutions
- o Supply Chain Management
- o Youth Transport Entrepreneur Programme
- o Restaurant Management

PROFESSIONAL SERVICE
Transportation Science and Logistics Society, International Liaison for Asia, Australia and New Zealand
Co-coordinator Pre-proposal Doctoral Consortium at Decision Science Conference (2017, 2018)
TSL Cluster Co-Chair – INFORMS International Conference Taipei, 2018
Special Issue Co-editor, International Journal of Production Research, Warehouse Design and Management
Chair – Post Graduate Programme in Food and Agri-business Management (June 2015 – June 2017)
Adhoc Reviewer of IIE Transactions, International Journal of Production Research, Transportation Science, Operations Research, MSOM, European Journal of Operations Research, Computers and Operations Research
Editorial Board Member of International Journal of Automation and Logistics
Reviewer for 2011 IERC Conference, 2010 M&SOM Conference, 2013, 2011 and 2010 IEEE Conference on Automation Science and Engineering
Member of the ISyE Student Advisory Board (2007 – 2010)
Member of INFORMS

PHD STUDENT SUPERVISION

Tim Lamballais (2019, RSM) – Daily Supervisor
Kaveh Azadeh (2019, RSM) – Daily Supervisor
Govind Lal Kumawat (2019, IIMA) - Chair
Arulanantha Prabu (2019, IIMA) – Co-chair
Vishal Bansal (2019, IIMA) - Chair

PROFESSIONAL EXPERIENCE

***Training/Consulting*, IIM Ahmedabad (March 2012-Present)**
Food Corporation of India, KFC India, Mahindra Trucks and Buses Limited, Shipping, Kunvarji Group

***Research Assistant*, Center for Quick Response Manufacturing, University of Wisconsin-Madison (January 2006 – July 2011)**

***Risk Manager*, GE Consumer Finance, Stamford, Connecticut, USA (January 2005-December 2005)**

***Six Sigma Black Belt*, General Electric, Analytic Center of Excellence, Bangalore, India (July 2003-December 2004)**

***Business Analyst,* General Electric, Analytic Center of Excellence, Bangalore, India (January 2002-June 2003)**

INVITED TALKS
Title: Integrated Order Picking Systems for E-Commerce Fulfillment: Technology, Performance Models, and Design Insights
- University of Arizona

Title: Analysis of Taxi-Driver Operating Strategies in E-hailing Platforms
- VU Amsterdam
- RSM, Supply Chain Department Seminar

Title: Batching strategies for eCommerce order fulfillment
- University of North Texas, Business School
- Indian Institute of Management Bangalore

Title: Design and Modeling of container terminals

- SmartPort Centre, Erasmus University
- Department Seminar, Department of Technology and Innovation, Rotterdam School of Management
- Department Seminar, Industrial Engineering and Management, Oklahoma State University

Title: Improving throughput capacity in multi-tier systems with autonomous vehicles
- Kühne Logistics University, The KLU
- University of Groningen
- TU Eindhoven, Industrial Engineering and Innovation Sciences
- EURANDOM, Eindhoven, Stochastics seminar
- TU Delft, 3ME
- ERIM seminar, Rotterdam School of Management

Title: Design insights for warehouse systems using autonomous vehicle technology
- IIM Calcutta
- IIM Ahmedabad
- IISc Bangalore
- Material Handling Forum, Rotterdam School of Management
- IIM Indore
- IIT Bombay

Title: Logistics Management: Trends and Opportunities
- Ahmedabad Custom House Agents Association, Knowledge Session
- Gujarat Statistical conference
- Logistics Conference on Logistics infrastructure & Make in India, Gujarat Chamber Building, Ahmedabad

Title: "How to do relevant research and publish in top tier journals?
- Indian Institute of Management Indore
- Indian Institute of Management Ahmedabad, ORSI Conference Workshop

PERSONAL INFORMATION
Married with two children
Indian citizen