NIMA MORADI

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Program of Information & Systems Engineering
Concordia Institute for Information Systems Engineering
Concordia University
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Academic Appointment

2023 – Present **Information & Systems Engineering, Concordia University, Montreal, Canada**
Ph.D. Candidate
Thesis: *Sustainable last mile delivery using integrated electric transport solutions*
Supervisors: Prof. Fereshteh Mafakheri, Prof. Chun Wang

Education

2020 – 2022 **Sabanci University, Istanbul, Turkey**
M.Sc. in Industrial Engineering
Supervisors: Prof. Bülent Çatay, Dr. Mir Ehsan Hesam Sadati
Thesis: *Last mile delivery routing problem using autonomous electric vehicles*

2016 – 2019 **Sharif University of Technology, Tehran, Iran**
M.Sc. in Social-economical Systems Engineering
Supervisor: Prof. Shahram Shadrokh
Thesis: *Simultaneous solution of the project material procurement scheduling problem and warehouse allocation using a population-based simulated annealing algorithm*

2011 – 2016 **Iran University of Science & Technology, Tehran, Iran**
B.Sc. in Industrial Engineering
Advisor: Prof. Siamak Noori
Project: *Studying the methods of the project completion time reduction*

Research Interests

Applications: Last-mile Delivery, Combinatorial optimization problems (covering-routing, project scheduling, facility layout, knapsack problems), performance evaluation

Methodologies: Mathematical Programming, (Meta)heuristics (simulated annealing, genetic algorithm, electron radar search algorithm, variable neighborhood search, large neighborhood search), Data Mining (machine learning), Multi-criteria Decision Making (AHP, TOPSIS)

Research Experience

2023 – Present **Graduate Research Assistant, Information Systems Engineering, Concordia University**
2020 – 2022 **Graduate Research Assistant, Smart & Mobility Logistics Lab (SML), Sabanci University**
2017 – 2019 **Graduate Research Assistant, Sharif University of Technology**
2017 – 2018 **Research Assistant, Entrepreneurship Center of Sharif University of Technology**

Teaching Experience

2022   **Teaching Assistant, Logistics Systems Planning and Design, Sabanci University**
2022   **Teaching Assistant, Operations Research 1 (With Python-Gurobi interface), Sabanci University**
2022   **Teaching Assistant, Introduction to Industrial Engineering (With Python), Sabanci University**
2021   **Teaching Assistant, Introduction to Industrial Engineering (With Python), Sabanci University**
2021   **Teaching Assistant, Supply Chain Analysis, Sabanci University**
2021   **Teaching Assistant, Operations Research 1 (With Python-Gurobi interface), Sabanci University**
2021   **Teaching Assistant, Introduction to Industrial Engineering (With Python), Sabanci University**
2020   **Teaching Assistant, Product & Service Systems Plan & Design, Sabanci University**
2019   **Teaching Applications of GAMS software, Sharif University of Technology**
2015   **Teaching Simulation by ED software, Iran University of Science and Technology**
2011   **Teaching Mathematics, Geometry and Statistics, Khayam Institution, Urmia, Iran**

Published & Submitted Journal Papers

- **Moradi, N.**, Mafakheri, F., Wang, C., & Baldacci, R. (2025). Robot-aided electric vehicle routing problem with lockers and prime customers prioritization. *European Journal of Operational Research*.
- NM Boroujeni, NM Boroujeni, **N Moradi**, S Jamalzadeh (2025). Spatial Optimisation of Autonomous Vehicle Assignment Based on Distance-Driven Demand and Customer Patience. *International Journal of Logistics Systems and Management*. DOI: 10.1504/IJLSM.2025.10069826
- Boroujeni, N. M., **Moradi, N.**, Jamalzadeh, S., & Boroujeni, N. M. (2025). Last-mile delivery optimization: Leveraging electric vehicles and parcel lockers for prime customer service. *Computers & Industrial Engineering*, https://doi.org/10.1016/j.cie.2025.110991, **Note**: In this paper, the first and second authors equally contributed to the present work and shared the first authorship
- Aftabi, N., **Moradi, N.**, & Mahroo, F. (2025). Feed-forward neural networks as a mixed-integer program. *Engineering with Computers*, https://doi.org/10.1007/s00366-025-02114-2
- Navid Aftabi, **Nima Moradi**, Fatemeh Mahroo, Farhad Kianfar (2025). SD-ABM-ISM: An Integrated System Dynamics and Agent-Based Modeling Framework for Information Security Management in Complex Information Systems with Multi-Actor Threat Dynamics. *Expert Systems with Applications*, https://doi.org/10.1016/j.eswa.2024.125681
- **Moradi, N.**, & Boroujeni, N. M. (2025). Prize-collecting Electric Vehicle routing model for parcel delivery problem. *Expert Systems with Applications*, 259, 125183. https://doi.org/10.1016/j.eswa.2024.125183
- **Moradi, N.**, & Jalilian, M. (2025). Analyzing the Customer Purchase Data of an Online Shopping Store by Data Mining: A Real Case Study in Iran. *International Journal of Research in Industrial Engineering*, https://doi.org/10.22105/riej.2024.468414.1458
- **Nima Moradi**, Fereshteh Mafakheri, & Chun Wang (2024). Set Covering Routing Problems: A Review and Classification Scheme. *Computers & Industrial Engineering*, https://doi.org/10.1016/j.cie.2024.110730
- **Moradi, N.**, Wang, C., & Mafakheri, F. (2024). Urban Air Mobility for Last-Mile Transportation: A Review. *Vehicles*, 6(3), 1383-1414. https://doi.org/10.3390/vehicles6030066
- **Moradi, N.**, Kayvanfar, V. and Baldacci, R. (2023). On-site workshop investment problem: A novel mathematical approach and solution procedure. *Heliyon*, 9(12), p.e22678. https://doi.org/10.1016/j.heliyon.2023.e22678
- Alexander Ireland, Sarah Farahdel, **Nima Moradi**, Chun Wang, Fereshteh Mafakheri, & Anjali Awasthi (2023). Equitable community integration of urban air mobility: challenges, approaches, and opportunities. NGCI Encyclopedia, book chapter.
- **Moradi, N.**, Sadati, İ. & Çatay, B. (2023). Last mile delivery routing problem using autonomous electric vehicles. *Computers & Industrial Engineering*, p.109552. https://doi.org/10.1016/j.cie.2023.109552
- Yaghoubi, A. & **Moradi, N.** (2023). An explicit formula for reliability of 1-out-of-n cold standby spare systems with Weibull distribution. *International Journal of Reliability, Quality and Safety Engineering*, 30(01), p.2250029. https://doi.org/10.1142/S0218539322500292
- **Moradi, N.** (2022). Performance evaluation of university faculty by combining BSC, AHP, and TOPSIS: from the student's perspective. *International Journal of the Analytic Hierarchy Process*, 14(2). https://doi.org/10.13033/ijahp.v14i2.915
- **Moradi, N.**, Kayvanfar, V. & Rafiee, M. (2021). An efficient population-based simulated annealing algorithm for 0–1 knapsack problem. *Engineering with Computers*, pp.1-20. https://doi.org/10.1007/s00366-020-01240-3
- **Moradi, N.**, & Moradi, S. (2021). A method for project performance evaluation by combining the project golden

triangle, BSC, AHP, and TOPSIS. *International Journal of Supply and Operations Management*, 8(1), 81-95. doi:10.22034/IJSOM.2021.1.7

- **Moradi, N.** (2019). Stochastic facility layout planning problem: a metaheuristic and case study, *Iranian Journal of Optimization*, 11(2), pp. 229-241. 20.1001.1.25885723.2019.11.2.13.4
- **Moradi, N.** & Shadrokh, S. (2019). Optimization of bi-objective un-equal area facility layout problem with grid system approach by simulated annealing. *International Journal of Applied Optimization Studies*, 2(04), 09-22. http://ijaos.com/index.php/home/article/view/48
- **Moradi, N.** & Shadrokh, S. (2019). A simulated annealing optimization algorithm for equal and un-equal area construction site layout problem. *International Journal of Research in Industrial Engineering*, 8(2), 89-104. https://doi.org/10.22105/riej.2019.169867.1073
- **Moradi, N.** & Shadrokh, S. (2019). Simultaneous solution of material procurement scheduling and material allocation to warehouse using simulated annealing. *Journal of Applied Research on Industrial Engineering*, 6(1), 1-15. https://doi.org/10.22105/jarie.2019.170649.1079
- **Moradi, N.**, Malekmohammad, H., & Jamalzadeh, S. (2018). A Model for Performance Evaluation of Digital Game Industry Using Integrated AHP and BSC. *Journal of Applied Research on Industrial Engineering*, 5(2), 97-109. https://doi.org/10.22105/jarie.2018.130777.1037

Conference Presentation & Proceedings

- **Nima Moradi**, Fereshteh Mafakheri, & Chun Wang (June 2025). Robot-assisted Electric Vehicle-based Parcel Delivery with Customer Preference and Energy Minimization. *CORS 2025*, Edmonton, Alberta, Canada (*Lecture*)
- **Nima Moradi**, Fereshteh Mafakheri, & Chun Wang (2024). A Sustainable Two-echelon Robot-aided Last-mile Delivery Approach. *The Impacts of Climate Change on the Transport Sector in Quebec and Canada by 2100*, Montreal, QC, Canada (*Lecture*)
- **Moradi, N.**, Kayvanfar, V., & Baldacci, R. (2024, July). Electric-vehicle routing problem with time windows and energy minimization: green logistics with same-day delivery approaches. *2024 International Conference on Electrical, Computer and Energy Technologies (ICECET)*, Sydney, Australia, (pp. 1-6). IEEE.
- **Nima Moradi**, Fereshteh Mafakheri, & Chun Wang (2024). Electric Vehicle Routing Problem with Robots, Parcel Lockers, and Time Windows. *25th International Symposium on Mathematical Programming (ISMP)*, Montreal, QC, Canada (*Lecture*)
- **Nima Moradi**, Fereshteh Mafakheri, & Chun Wang (2024). Sustainable Electric-Vehicle Routing Problem with Delivery Robots: A Green Logistic Approach. *CIRRELT Conference*, Quebec City, QC, Canada. (*Poster*)
- **Nima Moradi**, Fereshteh Mafakheri, & Chun Wang (2024). Covering Routing Problem with Robots and Parcel Lockers: A Sustainable Last-Mile Delivery Approach. *IISE Annual Conference & Expo 2024*, Montreal, QC, Canada (*Lecture*)
- Sina Moradi, & **Nima Moradi** (2023). Risk management in financial and banking institutions: A Game theory approach. *The 8th FINACT-IRAN*, Tehran, Iran.
- Sina Moradi, Samaneh Fajr, & **Nima Moradi** (2023). Investigating the impact of economic freedom and globalization on reducing the unemployment rate. *2nd International Congress on Management, Economy, Humanities and Business Development*, Tabriz, Iran.
- Sina Moradi, & **Nima Moradi** (2022). Investigating the impact of GDP, money and Covid-19 disease on the index of Tehran Stock Market: ARDL model. *Third International Conference on Innovations in Business Administration and Economics (ICIBAE)*, Tehran, Iran. (*Lecture via Zoom*)
- Arghavan Sharafi, **Nima Moradi**, & Beste Basciftci (2022). Mixed-Integer Programming Formulations and Valid Inequalities for the Electric Vehicle Routing Problem. *7th International Symposium on Combinatorial Optimization (ISCO)* (*Lecture via Zoom*)
- Sina Moradi, & **Nima Moradi** (2022). Investigating the conflict between the interests of shareholders and managers in the capital market: Game Theory approach. *7th Conference on Mathematics, Humanities, and Financial Mathematics*, Tehran, Allameh Tabatabai University. (*Lecture via Zoom*)
- Sina Moradi, & **Nima Moradi** (2021). Analysis of Financial Markets with a Game Theory Approach. *9th International Conference on Management of Finance, Business, Banking, Economics, and Accounting*, Istanbul, Turkey. (*Lecture via Zoom*)
- **Nima Moradi**, & Sina Moradi (2021). Comparative study of Classification Techniques of Decision Tree, Deep Learning and K-nearest Neighbors algorithm for Adult Income Prediction: A Real Case Study. *2nd International Conference on Challenges and New Solutions in Industrial Engineering and Management and Accounting (ICCN-*

SIEMA), Damghan, Iran. (*Lecture via Zoom*)

- Sina Moradi, & **Nima Moradi** (2021). Investigating the Impact of Foreign Direct Investment on Startup skills in Selected Countries. *5th National Conference on Economics, Management and Accounting (NCEMA)*, Ahwaz, Iran. (*Lecture via Zoom*)
- **Nima Moradi**, & Shahram Shadrokh (2018). Simultaneous solving the Time-cost Reduction Problem of the Project Network and Un-equal CSLP problem by SA. *3rd International Conference on New Findings of Civil, Architectural and Iran Building Industry*, Tehran, Iran. (*Lecture*)
- **Nima Moradi**, Sina Moradi, & Amir Ghahremani (2018). Performance Evaluation of Organization Using the Integrated Six-Dimension Balanced Scorecard model and TOPSIS: A Case Study. *2nd International Conference on New Findings on Accounting, Management, Economics and Banking*. Tehran, Iran.(*Lecture*)
- **Nima Moradi**, & Shahram Shadrokh (2018). Optimization of Bi-objective Construction Site Layout Planning with Un-equal Area Using Simulated Annealing. *The 2nd International Conference on Urban Management, Civil Engineering and Technology in Modern Architecture*, Rome, Italy.
- Navid Aftabi, **Nima Moradi**, & Fatemeh Mahroo (2018). A dynamical systems model for Iran electricity market. *14th International Industrial Engineering Conference (IIEC)*, Iran University of Science and Technology, Tehran, Iran. (*Poster*)
- Mohammad Fili, **Nima Moradi**, & Hossein Malekmohammad (2017). An organization's safety assessment model by integrating the Balanced Scorecard methodology and AHP. *The 1st International Conference on HSE experts in oil, Petrochemical, Steel and Cement industries and Construction projects*, Shiraz-Iran. (*Poster*)
- **Nima Moradi**, Hossein Malekmohammad, Mohammad Fili, & Sina Moradi (2017). Studying the relationship between entrepreneurship and tourism demand for Iran with the econometric approach. *The 3rd International Conference on Entrepreneurship, Creativity and Innovation*, Shiraz, Iran. (*Lecture*)
- Hossein Malekmohammad, Mohsen Pourseyed Aghaee, & **Nima Moradi** (2017). Improving the capacity of high-density stations with the planning and development of basic railway transportation. *The 3rd International Conference on Entrepreneurship, Creativity and Innovation*, Shiraz, Iran. (*Lecture*)
- Hossein Malekmohammad, Mohsen Pourseyed Aghaee, & **Nima Moradi** (2017). Fuel consumption evaluation and suggestions for reducing fuel consumption in transport and pollution reduction. *The 1st International Conference on HSE experts in oil, Petrochemical, Steel and Cement industries and Construction projects*, Shiraz-Iran. (*Poster*)
- **Nima Moradi**, Saeed Jamalzadeh, & Hossein Malekmohammad (2017). Optimal Allocation of Ambulance Facilities with Simulation Approach. *The 3rd International Conference on Entrepreneurship, Creativity and Innovation*, Shiraz, Iran. (*Lecture*)

Working Papers

- Two-echelon robot-assisted electric vehicle routing problem with pickup stations
- Heterogeneous Electric Vehicle Routing Problem with Time Windows and Energy Minimization
- Two-echelon Electric Vehicle Routing Problem in Parcel Delivery: A Literature Review
- An Electric-vehicle-based Parcel Delivery with E-cargo Bikes and Time Windows: An Optimization-Simulation Approach
- Predicting Vulnerability to Malware Using Machine Learning Models: A Study on Microsoft Windows Machines
- Mixed-integer programming formulations for the heterogeneous electric vehicle routing problem with time windows
- An improved electron radar search algorithm for multi-mode on-site workshop availability cost problem (*Submitted*)
- Strategic Site Selection and Capacity Planning During Healthcare Crises: Application to Immunization Coverage in Mashhad, Iran
- Efficient and Sustainable Drug Delivery Routing-Covering Problem for High-priority Cases: A Novel Bi-objective Model and Metaheuristic
- Enhancing Last-Mile Delivery with Integrated Electric Vehicles and Pickup Stations

Grants & Scholarships

2025	**Grant to attend the CORS 2025**
2024 – 2025	**Michael-Florian scholarship, CIRRELT, Université de Montréal**
2023 – 2026	**Miriam Aaron Roland Graduate Fellowship, Concordia University**
2023 – 2026	**Research Assistance Full Scholarship, Concordia University**
2023	**Doctoral Scholarships of Excellence – Early Stages, CIRRELT, Université de Montréal**
2020 – 2022	**Graduate Student Full Scholarship, Sabanci University**
2019	**Fund for Top Researcher, Sharif University of Technology**
2019	**Fund for Conference Attendance, Sharif University of Technology**
2016 – 2019	**Full Governmental Fellowship, Sharif University of Technology**
2011 – 2016	**Full Governmental Fellowship, Iran University of Science & Technology**

Honors & Awards

2025	**Concordia Conference and Exposition Allowance**
2024	**Concordia Conference and Exposition Allowance**
2023 – 2026	**International Tuition Award of Excellence, Concordia University**
2016	**Ranked 2nd in Iran's M.Sc. Nationwide Universities Entrance Exam in Industrial Engineering**
2016	**Ranked 4th in Iran's M.Sc. Nationwide Universities Entrance Exam in Future Research**
2011	**Ranked Top 1% in Iran's B.Sc. Nationwide Universities Entrance Exam in Mathematics**
2010	**Ranked 2nd in Student Research Nationwide Competition of High Schools in Iran**

Academic & Professional Services

Ad-hoc (paper) reviewer for
- Computers & Operations Research (COR)
- Transportation Research Part C: Emerging Technologies (TRC)
- Transportation Research Part E: Logistics and Transportation Review (TRE)
- Computers & Industrial Engineering (CIE)
- Expert Systems with Applications (ESwA)
- Annals of Operations Research (AOR)
- Journal of the Operational Research Society (JORS)
- International Journal of Electrical Power & Energy Systems (IJEPES)
- Swarm and Evolutionary Computation (SEC)
- Operations Research Forum (ORF)
- Transportation Letters: The International Journal of Transportation Research (IJTR)
- Smart Cities (SC)
- World Electric Vehicle Journal (WEVJ)
- Applied Economics Letters (AEL)
- Urban Sciences (US)
  AgriEngineering (AgEn)
- Geocarto International (GI)
- IET Collaborative Intelligent Manufacturing (IETCAM)
- ACM Computing Surveys (ACMCS)
- Discover Applied Sciences (DAS)
- Applied Sciences (AS)
- Discover Computing (DC)
- Aerospace (MDPI)
- The Journal of Supercomputing (JS)
- Discover Artificial Intelligence (DAI)
- Scientific Reports (SR)
- Cluster Computing (CC)
- Evolutionary Intelligence (EI)
- Sustainability (Su)
- International Journal of Reliability, Quality and Safety Engineering (IJRQSE)
- 11th IFAC Conference on Manufacturing Modelling, Management and Control (MIM 2025)
- 2025 IEEE 28th International Conference on Computer Supported Cooperative Work in Design (IEEE CSCWD 2025)
- Croatian Operational Research Review (CORR)
- Environmental Science and Pollution Research (ESPR)
- International Journal of Production Research (IJPR)
- International Journal of the Analytic Hierarchy Process (IJAHP)
- Advances in Science, Technology and Engineering Systems Journal (ASTESJ)
- International Journal of Research in Industrial Engineering (IJRIE)
- Journal of Applied Research on Industrial Engineering (JARIE)

Editorial Board of
- Development and Entrepreneurship Journal, Sharif University of Technology (2018-22)

Research and Development (R&D) Expert at
- Entrepreneurship Center at Sharif University of Technology (2017-18)
- Faranegar Pars System Company, Iran (2017-18)
- Rakhsh Trailer Production Company (2016)

Technical Skills

Main: C++ (Optimization codes), Python, GAMS, Design Expert, MSP, LATEX, MATLAB, Microsoft Office
Secondary: Enterprise Dynamics (Simulation), Arena, Rapid Miner, SAS, VENSIM, R, EndNote

Membership

- Canadian Operational Research Society (CORS)
- Mathematical Optimization Society
- Sustainable, Smart, and Socially-Oriented Mobility Systems Lab (SSSOMSL)
- Institute of Industrial and Systems Engineers (IISE)
- Centre interuniversitaire de recherche sur les reseaux d'entreprise, la logistique et le transport (CIRRELT)
- Golden Key International Honour Society (GKS)
- Decision Modeling & Analytics Laboratory (DeciMAL)
- Smart Mobility and Logistics Lab (SML)
- Scientific Association of Industrial Engineering (ScAIE), Sharif University of Technology
- Entrepreneurship Club of Sharif University of Technology (ECSUT)
- Software Association of Industrial Engineering (SAIE), Iran University of Science & Technology

Core courses

Course name	Grade	Course name	Grade
Integer Programming	A^+	Dynamic Programming	A^+
Operation Research	A^+	Project Scheduling	A^+
Decision Making Tools	A^+	Quality Assurance Supply Chain	A^+
Optimization via Simulation	A^+	Dynamic Systems	A^+
Facility Layout and Design	A^+	Financial Management	A^+
Fundamental of Simulation	A^+	Numerical Computations	A^+
Industrial Safety and Hygiene	A^+	Humans Factor Engineering	A^+
Maintenance and Repair Planning	A^+	Linear Programming	A
Principle of Management	A^+	Management Information Systems	A
Applied Artificial Intelligence	A	Data mining	A
Software Quality Assurance	A	Production Planning	A
Production Processes	A	Production and Inventory Control	A