



Affiliation

Department of Industrial Engineering, Istinye University, Istanbul, Turkey

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Erfan Babae Tirkolae

Assistant Professor

Educational Data

2015 - 2019; Mazandaran University of Science and Technology, Iran
Ph.D., Industrial Engineering

2012 - 2014; Isfahan University of Technology, Iran
M.Sc., Industrial Engineering

2008 - 2012; Isfahan University of Technology, Iran
B.Sc., Industrial Engineering

Teaching Experiences

Oct 2020 - Present; Istinye University, Turkey

- Multi-Criteria Decision-Making
- Operations Research
- Modeling and Optimization
- Production Planning and Control
- Supply Chain Management
- Quality and Reliability Engineering
- Facilities Design and Planning
- Stochastic Models

Jan 2020 - Jul 2020; Damghan University, Iran

- Facility Layout Planning and Design
- Operations Research
- Engineering Economics

Jan 2016 - Jul 2020; University of Science & Technology of Mazandaran, Iran

- Probability Theory
- Operations Research
- Advanced Operations Research
- Facility Layout Planning and Design
- Engineering Economics

Jan 2019 - Jan 2020; Mazandaran University of Science & Technology, Iran

- Maintenance Planning
- Engineering Economics

Jan 2016 - Jul 2016; University College of Rouzbahan, Iran

- Maintenance Planning

Jan 2014 - Jan 2018; Payam Noor University, Iran

- Time and Motion Study
- Quality Control
- Industrial Engineering English
- Engineering Economics
- Management Information Systems

Sep 2012 - Jul 2014; Isfahan University of Technology, Iran (TA)

- Supply Chain Management
- Engineering Economics



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Work Experiences

Sep 2016 - Jul 2018; Farasanat Shomal Company, Iran

- Quality Assurance & Training Expert

Jul 2012 - Jul 2014; Sardasaz Novin Industries, Iran

- Production Planning Expert

Completed Training Courses

- Knowledge Management, *IMQ*, Iran (2016)
- SPC, *IMQ*, Iran (2017)
- Principles of Management and Supervision, *IMQ*, Iran (2016)
- ISO 9001:2015, *Sapco- Iran Khodro*, Iran (2016)
- IATF 16949:2016, *Sapco- Iran Khodro*, Iran (2017)
- TPM, *IMQ*, Iran (2016)
- PSA requirements (Peugeot-Citroën), *Saipa*, Iran (2017)
- Process Audit, *Sapco- Iran Khodro*, Iran (2016)
- Logistic Requirements, *Sapco- Iran Khodro*, Iran (2017)
- Customer Requirements, *Sapco- Iran Khodro*, Iran (2017)

Administrative Tasks

March 2022 - present; Istinye University, Turkey

- Erasmus Coordinator of the department
- Capstone Project Coordinator of the faculty

Postdoc Fellowship

July 2023 - July 2024; Lebanese American University, Lebanon

- Department of Industrial and Mechanical Engineering

Honorary Research Fellowship

June 2023 - present; Yuan Ze University, Taiwan

- Department of Industrial Engineering and Management

Erasmus Staff Mobility for Teaching

Feb 2022 - March 2022; Politehnica University of Bucharest, Romania

- Department of Industrial Engineering and Robotics

Research Interests

- Supply Chain Management
- Production Planning and Scheduling
- Mathematical Modeling
- Waste Management
- Transportation and Routing
- Artificial Intelligence

Languages

- Persian & Mazandarani (Native)
- English
- Turkish

Computer Skills

- LINGO
- Minitab
- MSP
- GAMS
- SPSS
- Corel
- MATLAB
- Catia
- Adobe Audition
- Office
- Photoshop



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Personal Interests

- Electronic keyboard
- Piano
- Iranian Tar and Setar
- Singing
- Swimming
- Bodybuilding
- Taekwondo
- Gymnastics
- Fishing

Editorial Memberships - WoS

1. Associate Editor of *IEEE Transactions on Fuzzy Systems* (ISSN: 1063-6706), IEEE (Q1),
2. Associate Editor of *Facta Universitatis, Series: Mechanical Engineering* (ISSN: 2335-0164), University of Niš (Q1),
3. Academic Editor of *PLOS ONE* (ISSN: 1932-6203), PLOS (Q1),
4. Academic Editor of *PeerJ Computer Science* (ISSN: 2376-5992), PeerJ (Q1),
5. Associate Editor of *Journal of Dynamics and Games* (ISSN: 2164-6066), AIMS (Q3),
6. Editorial Advisory Board member of *Management Decision* (MD) (ISSN: 0025-1747), emerald (Q2).

Editorial Memberships - Scopus

1. Editorial Board member of *Journal of Fuzzy Extension & Applications (JFEA)*, (ISSN: 2717-3453), Ayandegan Institute of Higher Education (Q1),
2. Editorial Board Member of *Intelligent Automation and Soft Computing: An International Journal* (ISSN: 1079-8587), Tech Science Press (Q2),
3. Editorial Board member of *International Journal of Supply and Operations Management (IJSOM)* (ISSN: 2383-2525). Kharazmi University (Q3),
4. Editorial Board member of *International Journal of Industrial Engineering and Production Research (IJIEPR)* (ISSN: 2008-4889). Iran University of Science and Technology (Q3).

Chief Editorial Memberships

- Co-Editor-in-Chief of *International Journal of Applied Optimization Studies (IAOS)*, (ISSN: 2645-4327).

Previous Editorial Memberships

1. Associate Editor of *Expert Systems with Applications* (ISSN: 0957-4174), Elsevier (WoS, Q1, 2022-2024).

Guest Editorial Activities - WoS

1. Tirkolaei, E.B., Weber, G. W., and Ranjbarzadeh, R.(2024). Advancing Knowledge-Based Economies and Societies through AI and Optimization: Innovations, Challenges, and Implications. *Frontiers in Artificial Intelligence*, frontiers (open),
2. Tirkolaei, E.B., Goli, A., and Weber, G. W. (2024). AI-driven Smart Infrastructures and Buildings for Sustainable Development in the Era of Industry 4.0. *Journal of Infrastructure, Policy and Development*, EnPress (open),



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3. Tirkolae, E.B., Shokouhyar, S., Tanveer, M., and Siarry, P. (2023-2024). Advances of Optimization and Artificial Intelligence in Municipal Waste Management Systems. *Engineering Applications of Artificial Intelligence*, Elsevier (closed),
4. Garza-Reyes, J. A., Özceylan, E., Goli, A., Tirkolae, E. B., and Liao, H. (2023-2024). Smart Fuzzy Optimization in Sustainable Manufacturing and Supply Chain Management. *IEEE Transactions on Fuzzy Systems*, IEEE (closed),
5. Tirkolae, E. B., Azadnia, A. H., Ghadimi, P., Paydar, M. M., Leung, J., and Mirzazadeh, A. (2022-2023). Resilient, Sustainable and Smart Supply Chain Management in the Healthcare Industry: Application of Data Analytics and Optimization Techniques. *Operations Research Perspectives*, Elsevier (closed),
6. Tirkolae, E. B. (2022-2023). Advances of Artificial Intelligence for Sustainable Engineering and Medical Applications: Machine Learning and Optimization. *Bioengineering*, MDPI (open),
7. Ali, S. S., Weber, G. W., Tirkolae, E. B., and Goli, A. (2022-2023). Circular Economy Practices in the Context of Emerging Economies. *Sustainability*, MDPI (closed),
8. Erdibili, B., and Tirkolae, E. B. (2022-2023). Sustainable Development of Industrial Engineering With the Application of Intelligent Systems. *Sustainability*, MDPI (closed),
9. Weber, G. W., Goli, A., and Tirkolae, E. B. (2022-2023). Logistics and Operations Modelling and Optimisation for Sustainable Supply Chain. *Sustainability*, MDPI (closed),
10. Lotfi, R., Weber, G. W., and Tirkolae, E. B. (2022). Recent advances in viable and sustainable supply chain management. *Environmental Science and Pollution Research*, Springer (closed),
11. Weber, G. W., Arabnia, H., Aydin, N. S., and Tirkolae, E. B. and Goli, A. (2021). Advances of Machine Learning and Optimization in Healthcare Systems and Medicine. *Annals of Operations Research*, Springer (closed),
12. Tirkolae, E. B., Goli, A., and Mirjalili, S. (2021). Circular Economy Application in Designing Sustainable Medical Waste Management Systems. *Environmental Science and Pollution Research*, Springer (closed),
13. Tirkolae, E. B., Goli, A., Golpîra, H., and Gonzalez, E. S. (2021). Sustainable Global Supply Chain Management: From an International Perspective. *Sustainability*, MDPI (closed),
14. Goli, A., Tirkolae, E. B., and Gonzalez, E. S. (2021). Machine Learning in Sustainable Industrial Development. *Mathematical Problems in Engineering*, Hindawi (closed),
15. Weber, G. W., Goli, A., and Tirkolae, E. B. (2021). Computational Performance Analysis based on Novel Intelligent Methods: Exploration and Future Directions in Production and Logistics. *Foundations of Computing and Decision Sciences*, Poznań University of Technology (closed),
16. Tirkolae, E. B., Goli, A. and Malmir, B. (2021). Recent advances of solutions algorithms for logistics routing problems. *Logistics*, MDPI (closed).



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Conference Chairmanships

- Chair of the "1st International Conference on Optimization and Data Science in Industrial Engineering (ODSIE 2023)", November 16-17, 2023, Istinye University, Istanbul, Turkey,
- Chair of the "2nd International Conference on Optimization and Data Science in Industrial Engineering (ODSIE 2024)", November 7-8, 2024, Istinye University, Istanbul, Turkey.

Scientific Panel Chairmanships/Memberships

- Chair of the panel "Multi-Criteria Decision-Making in Logistics and Supply Chain Management" at *22nd International Logistics and Supply Chain Congress (LMSCM2024)*, Istinye University, Istanbul, Turkey,
- Chair of the panel "Machine Learning Algorithms" at *International Conference on Optimization and Data Science in Industrial Engineering (ODSIE2023)*, Istanbul, Turkey,
- International Program Committee Member of the *International Conference on Industrial Engineering, Intelligent Manufacturing, and Automation (ICIEIMA 2023)*, Tashkent, Uzbekistan,
- Chair of the panel "Optimization, Decision making and support systems" at *3rd International conference on science, engineering management and information technology (SEMIT2023)*, Ankara, Turkey,
- Chair of the "Special Session: Advances of Optimization and Artificial Intelligence in Municipal Waste Management Systems" at *The 5-th International Conference on Intelligent Decision Science- IDS-2022*, Istanbul, Turkey,
- Chair of the panel "Recent Advances of Circular Economy and Sustainable Development in Supply Chain Management" at *2nd International conference on science, engineering management and information technology (SEMIT2022-Sep)*, Ankara, Turkey,
- Chair of the panel "Artificial intelligence and expert systems" at *1st International conference on science, engineering management and information technology (SEMIT 2022-Feb)*, Ankara, Turkey,
- Member of the "Special Session: Human Factors and their Keys into Logistics and Production Planning, Development and Research" at *MANUFACTURING Conference 2022*, Poznan, Poland,
- Member of the "Special Session: Robust and stochastic modeling in logistics, production and warehouse planning in stream Specific Applications of Stochastic Modeling and Simulation in Engineering, Management and Science" and Organizing Committee at *31st European Conference on Operational Research-EURO ATHENS 2021*, Athens, Greece,

Org./Tech./Sci. Committee Memberships

- "The 6th International Conference on Supply Chain Management (IC-SCM2025)", Hosei University, Tokyo, Japan (Feb 21-23, 2025),
- "International Conference on Recent Advances in Operations Research & Business Analytics (RAORBA-2024)", Bharatiya Vidya Bhavan Institute of Management Science, In association with Operational Research Society of India (ORSI), West Bengal, India,
- "22nd International Logistics and Supply Chain Congress (LMSCM2024)", Istinye University, Turkey",
- "The UCN International Conference of Industrial Engineering (2024), Universidad Catolica del Norte, Chile",



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- “International Conference on Civil Engineering and Intelligent Construction, ICCEIC, China”,
- “International conference on science, engineering management and information technology, (SEMIT2022-Feb, SEMIT2022-Sep, SEMIT2023). Ankara, Turkey”,
- “International Conference on Advanced Intelligent Systems for Sustainable Development (2019-2023), AI2SD. Tangier, Morocco”,
- “The 5th International Conference on Intelligent Decision Science (2022), IDS-2022. Istanbul, Turkey”,
- “MANUFACTURING Conference 2022, Poznan, Poland”,
- “2nd International Conference on Challenges and New Solutions in Industrial Engineering and Management and Accounting (2021), ICCNIEMA 2021. Damghan, Iran”,
- “International Conference on Polymeric, Metallic and Composite Materials (2021), PMCM 2021. Wuhan, China”,
- “1st National Conference on Optimization & New Solution (2021). Nahavand, Iran; Methods (2021), ONSM 2021. Nahavand, Iran”,
- “1st National Conference on Transportation & Logistic (2021). Babolsar, Iran”,
- “7th International Conference on Logistics and Supply Chain Management (2020), LSCM 2020. Tehran, Iran”,
- “Euro Conference on Catalysis & Chemical Engineering Advancements (2019), Catalysis 2019. Rome, Italy”,
- “International Conference of Computer Science and Information Technology (2019), ICoSNIKOM 2019. Medan, Indonesia”.

Research Council Review Panel Memberships

- Australian Research Council (ARC), Funded by the National Competitive Grants Program (NCGP) of Australia,
- Latvian Council of Science (LCS) of the Republic of Latvia, under the supervision of the Minister for Education and Science,
- National Science Centre of Poland, Funded by Ministry of Science and Higher Education (Poland).

Review Panel Memberships

- Reviewer in more than 250 prestigious WoS journals such as *IEEE Transactions on Fuzzy Systems* (IEEE), *Computers & Operations Research* (Elsevier), *Transportation Research Part E: Logistics and Transportation Review* (Elsevier), *Journal of Cleaner Production* (Elsevier), *Science of The Total Environment* (Elsevier), *Swarm and Evolutionary Computation* (Elsevier), *Waste Management* (Elsevier) and *Artificial Intelligence Review* (Springer),
- Reviewer in many international conferences (e.g., IFORS and IEEE),
- Book proposal reviewer in emerald (2022).

Thesis Supervisions/Co-supervisions

- 3 Ph.D. theses under co-supervision (Mazandaran University of Science and Technology (2); Poznan University of Technology (1)),
- 1 co-supervised Ph.D. theses (Mazandaran University),
- Supervised 9 master theses (2016-2024) (Mazandaran University of Science and Technology (8); University of Science and Technology of Mazandaran (1)).



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PhD Internship Supervisions

- Artificial Intelligence to Waste Management Systems Design. (Dec 2022). University of Mascara, Algeria (Student: Boualem Sid Ahmed El Mahdi).

International Thesis Examination Experiences

- M.Sc. theses. (2022-present). UiT The Arctic University of Norway; Qatar University,
- Ph.D. theses. (2023-present). Anna University, India,
- Ph.D. theses. (2022-2023). Univerzita Hradec Králové, Czech Republic.

Speaking Experiences (Conferences/Seminars)

- “22nd International Logistics and Supply Chain Congress (LMSCM2024)”, “Multimodal last-mile e-mobility”, Istinye University (Oct 17), Istanbul, Turkey,
- “International Conference of Logistics & Lean Engineering for Advanced Healthcare Methodologies Modelling (LEAHMM2024)”, “Integrated design of a sustainable medical waste management system with co-modal transportation network”, Department of Chemical, Materials and Industrial Production Engineering of the University of Naples Federico II (Oct 11), Naples, Italy,
- “International Conference on Recent Advances in Operations Research & Business Analytics (RAORBA-2024)”, “Integrated design of a sustainable waste management system with co-modal transportation network”, Bharatiya Vidya Bhavan Institute of Management Science, In association with Operational Research Society of India (ORSI) (July 26), West Bengal, India,
- “The 17th International Conference of Iranian Operations Research Society”, “Integrated design of a sustainable waste management system with co-modal transportation network”, Kharazmi University (July 4), Tehran, Iran,
- “The International Conference on Applied Mathematics (ICAM-2024)”, “Integrated design of a sustainable waste management system with co-modal transportation network”, Vidyasagar University (June 28), West Bengal, India,
- “The 3rd International Conference on Nonlinear Applied Analysis and Optimization (ICNAAO-2023)”, “Travelling Salesman Problem with Drone and Bicycle”, National Institute of Technology (December 10), Durgapur, India,
- “The Second International Conference on Optimization of Production and Service Systems (COPSS 2022)”, “Sustainable Fuzzy Multiple-Trip Location-Routing Problem for Medical Waste Management during the COVID-19 Outbreak”, University of Guilan (November 16), Guilan, Iran,
- “Logistics Systems Seminar Series 2022”, “Sustainable Aggregate Production-Transportation Planning”, Yaşar University (November 7), Izmir, Turkey,
- “First APORS Youth Forum 2022”, “Sustainable fuzzy multi-trip location-routing problem for medical waste management during the COVID-19 outbreak”, Operations Research Society of China (26 April),
- “The 1st International Conference of Business Development and Digital Transformation (ICBDDT 2022)”, “Sustainable Aggregate Production-Transportation Planning: Towards Digital Transformation”, University of Isfahan (November 10), Isfahan, Iran,



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- “*Logistics Winter School 2022*”, “Sustainable fuzzy multi-trip location-routing problem for medical waste management during the COVID-19 outbreak”, Amirkabir University of Technology (February 22), Iran,
- “*Statistics Probability Operational Research seminars (SPOR2021)*”, “Just-in-Time Energy-Aware Flow Shop Scheduling Problem With Outsourcing Option, Human Factors and Stochastic Demand”, Atilim University (April 15), Turkey,
- “*International Conference on Logistics and Supply Chain Management (LSCM2020)*”, “Designing an Efficient Optimization System to Maximize the Total Value of Reverse Logistics in Waste Management with cars”, Kharazmi University (December 23), Iran,
- “*The 5th International Conference on Environment and Disasters (ICED2021)*”, “Sustainable location-allocation-transportation-inventory problem to design an urban waste management system under uncertainty”, International Association of Management Science and Engineering Technology (IAMSET) (July 22), China,
- “*The 2nd International Conference on Challenges and New Solutions in Industrial Engineering and Management and Accounting (ICNSIEMA2021)*”, “Fuzzy Mathematical Programming and Self-Adaptive Artificial Fish Swarm Algorithm for Just-in-Time Energy-Aware Flow Shop Scheduling Problem with Outsourcing Option”, Damghan University (May 6), Iran.

Invited Lectures

- “*Traveling salesman problem with drone and bicycle: multimodal last-mile e-mobility*”, Department of Industrial Engineering and Management, Yuan Ze University, Taoyuan, Taiwan (October 2023),
- “*Traveling salesman problem with drone and bicycle: multimodal last-mile e-mobility*”, Department of Industrial Engineering, UiT The Arctic University of Norway, Tromsø, Norway (September 2024),
- “*Circular–Sustainable–Reliable Waste Management System Design*”, Department of Industrial Engineering and Management, Yuan Ze University, Taoyuan, Taiwan (November 2024).

Accomplishments/Awards

- **Outstanding Early Career Researcher Award (Runner-up)**, *IEEE Bio-inspired Computing STC Annual Event* (2023),
- **Top 2% of reviewers for 2023**, *International Journal of Production Research* (IJPR),
- **WM&R Rising Star Award 2022**: Tirkolaee, E. B., and Aydin, N. S. (2021). A sustainable medical waste collection and transportation model for pandemics. *Waste Management & Research*, 39, 34-44 (Best Paper Award),
- Featured among the “*World’s Top 2% Researchers/Scientists in 2023*” list identified by **Elsevier BV, Stanford University** — ranked 22,163rd out of 223,153 (all fields),
- Featured among the “*World’s Top 2% Researchers/Scientists in 2022*” list identified by **Elsevier BV, Stanford University** — ranked 38,338th out of 210,199 (all fields),
- Featured among the “*World’s Top 2% Researchers/Scientists in 2021*” list identified by **Elsevier BV, Stanford University** — ranked 77,495th out of 200,409 (all fields),
- **Best Researcher** of the Faculty of Engineering at *Istinye University* in 2021,



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- *Ph.D. award winner-top doctoral thesis* in **International Conference on Logistics and Supply Chain Management (LSCM2020)**, Kharazmi University, Iran,
- *Top peer reviewer* and *Excellent reviewer* recognition by **Clarivate WoS**,
- *Outstanding reviewer* recognition by **Journal of Cleaner Production, Computers and Industrial Engineering**, etc.

Grant Projects

- Academic Supervisor in "Demand Forecasting in the Automotive Spare Parts Sector using Artificial Intelligence Tools", 2023-2024, *TUBITAK 2209-A University Students Research Projects Support Program*,
- Researcher in "Sustainable Aggregate Production Planning using Multi-Criteria Decision-Making, Mathematical Modeling and Machine Learning", 2020-2022, *MSRT-TUBITAK joint research projects*.

Book Editorships

- Mirzazadeh, A., Molamohamadi, Z., Erdebili, B., Tirkolae, E. B., and Weber, G. W. (2024). Science, Engineering Management and Information Technology: Second International Conference, SEMIT 2023, Part I. *Communications in Computer and Information Science* (CCIS, volume 2198), Springer Cham. ISBN: 978-3-031-72284-4,
- Mirzazadeh, A., Molamohamadi, Z., Erdebili, B., Tirkolae, E. B., and Weber, G. W. (2024). Science, Engineering Management and Information Technology: Second International Conference, SEMIT 2023, Part II. *Communications in Computer and Information Science* (CCIS, volume 2199), Springer Cham. ISBN: 978-3-031-72287-5,
- Mirzazadeh, A., Erdebili, B., Tirkolae, E. B., Weber, G. W., and Kar, A. K. (2023). Science, Engineering Management and Information Technology: First International Conference, SEMIT 2022, Part I. *Communications in Computer and Information Science* (CCIS, volume 1808), Springer Cham. ISBN: 978-3-031-40395-8,
- Mirzazadeh, A., Erdebili, B., Tirkolae, E. B., Weber, G. W., and Kar, A. K. (2023). Science, Engineering Management and Information Technology: First International Conference, SEMIT 2022, Part II. *Communications in Computer and Information Science* (CCIS, volume 1809), Springer Cham. ISBN: 978-3-031-40398-9,
- Molamohamadi, Z., Tirkolae, E. B., Mirzazadeh, A., Weber, G. W. (2021). Logistics and Supply Chain Management. *Part of the Communications in Computer and Information Science book series* (CCIS, volume 1458), Springer Cham. ISBN: 978-3-030-89743-7.

Editorial Notes/Prefaces - WoS

- Erdebili, B., and Tirkolae, E. B. (2024). Sustainable Development of Industrial Engineering with the Application of Intelligent Systems. *Sustainability*, 16(5), 1928,
- Ali, S. S., Weber, G. W., Tirkolae, E. B., and Goli, A. (2024). Circular Economy Practices in the Context of Emerging Economies. *Sustainability*, 16(4), 1417,
- Weber, G. W., Arabnia, H., Aydin, N. S., and Tirkolae, E. B. (2023). Preface: advances of machine learning and optimization in healthcare systems and medicine. *Annals of Operations Research*, 328(1), 1-2,



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- Lotfi, R., Weber, G. W., and Tirkolaee, E. B. (2023). Recent advances in viable and sustainable supply chain management. *Environmental Science and Pollution Research*, 30(39), 89943-89944,
- Weber, G. W., Goli, A., and Tirkolaee, E. B. (2023). Logistics and Operations Modelling and Optimization for Sustainable Supply Chain. *Sustainability*, 15(17), 12727,
- Tirkolaee, E. B., Goli, A., Golpîra, H., and Santibañez Gonzalez, E. D. (2023). Sustainable Global Supply Chain Management from an International Perspective. *Sustainability*, 15(16), 12154,
- Tirkolaee, E. B., Goli, A., and Malmir, B. (2023). Recent Advances of Solutions Algorithms for Logistics Routing Problems. *Logistics*, 7(3), 51,
- Goli, A., Tirkolaee, E. B., and Weber, G. W. (2022). Preface to the Special Issue on Computational Performance Analysis based on Novel Intelligent Methods: Exploration and Future Directions in Production and Logistics. *Foundations of Computing and Decision Sciences*, 47(2), 107-110,
- Tirkolaee, E. B., Goli, A., and Mirjalili, S. (2022). Circular economy application in designing sustainable medical waste management systems. *Environmental Science and Pollution Research*, 29(53), 79667-79668.

Papers - WoS

1. Meraji, H., Rahimi, D., Babaei, A., and Tirkolaee, E. B. (2025). Evaluating the Performance of Countries in COVID-19 Management: A Data-Driven Decision-Making and Clustering. *Applied Soft Computing*, in press,
2. Babaei, A., Tirkolaee, E. B., and Boz, E. (2025). Optimizing Energy Consumption for Blockchain Adoption through Renewable Energy Sources. *Renewable Energy*, 121936,
3. Ashraf, S., Naeem, M., Iqbal, W., Farid, H. M. A., Shakeel, H. M., Simic, V., and Tirkolaee, E. B. (2025). Selection of Internet of Things-enabled sustainable real-time monitoring strategies for manufacturing processes using a disc spherical fuzzy Schweizer–Skalar aggregation model. *Engineering Applications of Artificial Intelligence*, 139, 109607,
4. Tirkolaee, E. B. (2024). Circular–Sustainable–Reliable Waste Management System Design: A Possibilistic Multi-Objective Mixed-Integer Linear Programming Model. *Systems*, 12(10), 435,
5. Babaei, A., Babaei Tirkolaee, E., and Ali, S. S. (2024). Evaluating manufacturing plants readiness for distributed ledger technology: a network framework for ambiguity levels. *International Journal of Systems Science: Operations & Logistics*, 11(1), 2426732,
6. Razavian, B., Fayyaz, M., Ghasemi, P., Ozkul, S., and Tirkolaee, E. B. (2024). Addressing barriers to big data implementation in sustainable smart cities: Improved zero-sum grey game and grey best-worst method. *Journal of Innovation & Knowledge*, 9(4), 100593.
7. Thenarasu, M., Sakthi Balaji, S., Sumesh, A., Narassima, M. S., Rameshkumar, K., and Tirkolaee, E. B. (2024). Enhancing the productivity of mould shop using continuous improvement tools and simulation. *International Journal of Systems Science: Operations & Logistics*, 11(1), 2425014,
8. Yousefzadeh, H. R., Tirkolaee, E. B., and Kiani, F. (2024). A Novel Solution Approach Based on Dominance Evaluation Measure for Project Scheduling in Multi-Project Environments. *Systems*, 12(11), 476,



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9. Hasankhani, Z., Zandieh, M., and Tirkolaee, E. B. (2024). Identification of Optimal Waste-to-Energy Strategies for Sustainable Development in Iran: SWOT Analysis, Hybrid MCDM Methods, and Game Theory. *Renewable Energy*, 121564,
10. Topal, A., Tunga, B., and Tirkolaee, E. B. (2024). DeepEMPR: coffee leaf disease detection with deep learning and enhanced multivariate product representation. *PeerJ Computer Science*, 10, e2406,
11. Azeem, M., Rashid, H., Jamil, M. K., Gütmen, S., and Tirkolaee, E. B. (2024). Plithogenic fuzzy graph: A study of fundamental properties and potential applications. *Journal of Dynamics and Games*, 1-19,
12. Nikseresht, A., Shokouhyar, S., Tirkolaee, E. B., and Pishva, N. (2024). Applications and Emerging Trends of Blockchain Technology in Marketing to Develop Industry 5.0 Businesses: A Comprehensive Survey and Network Analysis. *Internet of Things*, 101401,
13. Khanmohammadi, E., Azizi, M., Talaie, H., Ecer, F., and Tirkolaee, E. B. (2024). A novel hybrid decision-making framework based on modified fuzzy analytic network process and fuzzy best-worst method. *Operational Research*, 24(4), 54,
14. Alioğulları, E., Türkan, Y. S., Çakmak, E., and Tirkolaee, E. B. (2024). Evaluation of Risk Strategies for Supply Chain Sustainability with Interval-Valued Neutrosophic Fuzzy EDAS. *Heliyon*, 10(19), e38607,
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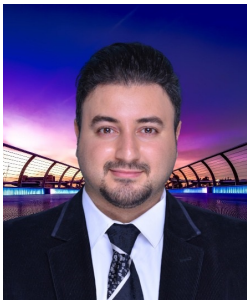
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