Ehsan Ardjmand

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Education

Ohio University, Ph.D.   **Athens, OH**
Systems Engineering   *Aug 2015*

Tarbiat Modares University, M.Sc.   **Tehran, Iran**
Industrial and Systems Engineering   *Sep 2010*

Amirkabir University of Technology, B.Sc.   **Tehran, Iran**
Industrial Engineering   *Sep 2007*

Teaching Experience

Ohio University   **Athens, OH**
Charles M. Copeland Assistant Professor of Analytics and Information Systems   *Jan 2019–present*

Undergraduate Courses:

- QBA 3720 Predictive Analytics (online/face-to-face)

Graduate Courses:

- MBA 6325 Prescriptive Analytics (face-to-face)
- MBA 6390 Predictive Analytics I (online)
- MBA 6490 Predictive Analytics II (online)

Frostburg State University   **Frostburg, MD**
Assistant Professor of Management   *May 2016–Dec 2018*

Undergraduate Courses:

- MGMT 359 Quality Management (face-to-face)
- MGMT 355 Operations Management (face-to-face)

Graduate Courses:

- MGMT 623 Data Analysis (online)
- MGMT 622 Data Management (online)
- MGMT 621 Foundations of Analytics (online)
- BMIS 607 Information Systems (online)
- MGMT 512 Management Decision Analysis (online)

Ohio University   **Athens, OH**
Instructor   *2014–2016*

Undergraduate Courses:

- MGT 3000 Operations Management (face-to-face)

Graduate Courses:

- OMBA 6320 Data analysis for decision making (online)

Research

Peer-Reviewed Journals:

- Tavasoli, A., Fazli, M., Ardjmand, E., Young II, W. A., & Shakeri, H. (2023). Competitive pricing under local network effects. European Journal of Operational Research.
- Asadi-Zonouz, M., Amin-Naseri, M. R., & Ardjmand, E. (2022). A modified unconscious search algorithm for data clustering. Evolutionary Intelligence, 1-27.

○ Ardjmand, E., Singh, M., Shakeri, H., Tavasoli, A., & Young II, W. A. (2021). Mitigating the risk of infection spread in manual order picking operations: A multi-objective approach. Applied Soft Computing, 100, 106953.

○ Tavasoli, A., Shakeri, H., Ardjmand, E., & Young II, W. A. (2021). Incentive rate determination in viral marketing. European Journal of Operational Research, 289(3), 1169-1187.

○ Fallahtafti, A., Ardjmand, E., Young II, W. A., & Weckman, G. R. (2021). A multi-objective two-echelon location-routing problem for cash logistics: A metaheuristic approach. Applied Soft Computing, 107685.

○ Fallahtafti, A., Karimi, H., Ardjmand, E., & Ghalehkhondabi, I. (2021). Time slot management in selective pickup and delivery problem with mixed time-windows. Computers & Industrial Engineering, 159, 107512.

○ Ardjmand, E., Stowe, D. L., & Stowe, J. D. (2020). Using Portfolio Theory to Design Better Exams. Journal of Financial Education, 46(2), 271-297.

○ Ardjmand, E., Young II, W. A., Ghalehkhondabi, I., & Weckman, G. R. (2021). A Scheduling and Rescheduling Decision Support System for Apparel Manufacturing. International Journal of Operations Research and Information Systems (IJORIS), 12(4), 1-19.

○ Ardjmand, E., Young II, W. A., & Almasarwah, N. E. (2021). Detecting Community Structures Within Complex Networks Using a Discrete Unconscious Search Algorithm. International Journal of Operations Research and Information Systems (IJORIS), 12(2), 15-32.

○ Ardjmand, E., Ghalehkhondabi, I., Young II, W. A., Sadeghi, A., Weckman, G. R., & Shakeri, H. (2020). A hybrid artificial neural network, genetic algorithm and column generation heuristic for minimizing makespan in manual order picking operations. Expert Systems with Applications, 159, 113566.

○ Singh, M., & Ardjmand, E. (2020). Carton Set Optimization in E-commerce Warehouses: A Case Study. Journal of Business Logistics, 41(3), 222-235.

○ Ardjmand, E., Bajgiran, O. S., & Youssef, E. (2019). Using list-based simulated annealing and genetic algorithm for order batching and picker routing in put wall based picking systems. Applied Soft Computing, 75, 106-119.

○ Ardjmand, E., Shakeri, H., Singh, M., & Bajgiran, O. S. (2018). Minimizing order picking makespan with multiple pickers in a wave picking warehouse. International Journal of Production Economics, 206, 169-183.

○ Ardjmand, E., Bajgiran, O. S., Rahman, S., Weckman, G. R., & Young II, W. A. (2018). A multi-objective model for order cartonization and fulfillment center assignment in the e-tail/retail industry. Transportation Research Part E: Logistics and Transportation Review, 115, 16-34.

○ Ardjmand, E., Weckman, G. R., Young, W. A., Sanei Bajgiran, O., & Aminipour, B. (2016). A robust optimisation model for production planning and pricing under demand uncertainty. International Journal of Production Research, 54(13), 3885-3905.

○ Ardjmand, E., Weckman, G., Park, N., Taherkhani, P., & Singh, M. (2015). Applying genetic algorithm to a new location and routing model of hazardous materials. International Journal of Production Research, 53(3), 916-928.

○ Ardjmand, E., Park, N., Weckman, G., & Amin-Naseri, M. R. (2014). The discrete unconscious search and its application to uncapacitated facility location problem. Computers & industrial engineering, 73, 32-40.

○ Ardjmand, E., Young II, W. A., Weckman, G. R., Bajgiran, O. S., Aminipour, B., & Park, N. (2016). Applying genetic algorithm to a new bi-objective stochastic model for transportation, location, and allocation of hazardous materials. Expert systems with applications, 51, 49-58.

○ Shakeri, H., Tavasoli, A., Ardjmand, E., & Poggi-Corradini, P. (2020). Designing optimal multiplex networks for certain Laplacian spectral properties. Physical Review E, 102(2), 022302.

○ Ghalehkhondabi, I., Ardjmand, E., Weckman, G. R., & Young, W. A. (2017). An overview of energy demand forecasting methods published in 2005–2015. Energy Systems, 8(2), 411-447.

○ Ghalehkhondabi, I., Ardjmand, E., Young, W. A., & Weckman, G. R. (2017). Water demand forecasting: review of soft computing methods. Environmental monitoring and assessment, 189(7), 1-13.

○ Ghalehkhondabi, I., Ardjmand, E., Young, W. A., & Weckman, G. R. (2019). A review of demand forecasting models and methodological developments within tourism and passenger transportation industry. Journal of Tourism Futures.

○ Ghalehkhondabi, I., & Ardjmand, E. (2020). Sustainable E-waste supply chain management with price/sustainability-sensitive demand and government intervention. Journal of Material Cycles and Waste Management, 22(2), 556-577.

- Ardjmand, E., Young II, W. A., & Almasarwah, N. E. (2021). Detecting Community Structures Within Complex Networks Using a Discrete Unconscious Search Algorithm. International Journal of Operations Research and Information Systems (IJORIS), 12(2), 15-32.

- Ardjmand, E., Youssef, E. M., Moyer, A., Ii, W. A. Y., Weckman, G. R., & Shakeri, H. (2020). A multi-objective model for minimising makespan and total travel time in put wall-based picking systems. International Journal of Logistics Systems and Management, 36(1), 138-176.

- Weckman, G. R., Dravenstott, R. W., Young II, W. A., Ardjmand, E., Millie, D. F., & Snow, A. P. (2020). A Prescriptive Stock Market Investment Strategy for the Restaurant Industry using an Artificial Neural Network Methodology. In Deep Learning and Neural Networks: Concepts, Methodologies, Tools, and Applications (pp. 217-237). IGI Global.

- Ardjmand, E., Weckman, G. R., Schwerha, D., & Snow, A. P., (2016). An Approach to Analyzing the Retirement Satisfaction among Men and Women Based on Artificial Neural Networks and Decision Trees. International Journal on Advances in Intelligent Systems 9 (3 & 4), 265 - 274.

- Rahman, S., Ardjmand, E., & Shore, J. (2017). Facebook Use in the Western Maryland Appalachian Region: Restaurant/Cafe Businesses. QRBD, 143.

- Ghalehkhondabi, I., Ardjmand, E., & Weckman, G. (2017). Integrated decision making model for pricing and locating the customer order decoupling point of a newsvendor supply chain. Opsearch, 54(2), 417-439.

- Ardjmand, E., Millie, D. F., Ghalehkhondabi, I., Young II, W. A., & Weckman, G. R. (2016). A state-based sensitivity analysis for distinguishing the global importance of predictor variables in artificial neural networks. Advances in Artificial Neural Systems, 2016.

- Ardjmand, E., Ghalehkhondabi, I., Weckman, G. R., & Young, W. A. (2016). Application of decision support systems in scheduling/planning of manufacturing/service systems: a critical review. International Journal of Management and Decision Making, 15(3-4), 248-276.

- Jahedi, M., Ardjmand, E., & Knezevic, M. (2017). Microstructure metrics for quantitative assessment of particle size and dispersion: application to metal-matrix composites. Powder Technology, 311, 226-238.

- Millie, D.F., Weckman, G.R., Fahnenstiel, G.L., Carrick, H.J., Ardjmand, E., Young, W.A., Sayers, M.J. & Shuchman, R.A. (2014). Using artificial intelligence for CyanoHAB niche modeling: discovery and visualization of Microcystis–environmental associations within western Lake Erie. Canadian Journal of Fisheries and Aquatic Sciences, 71(11), 1642-1654.

- Millie, D. F., Weckman, G. R., Young II, W. A., Ivey, J. E., Fries, D. P., Ardjmand, E., & Fahnenstiel, G. L. (2013). Coastal 'Big Data'and nature-inspired computation: Prediction potentials, uncertainties, and knowledge derivation of neural networks for an algal metric. Estuarine, Coastal and Shelf Science, 125, 57-67.

Patents:

- Kalra, A., Rangwala, M., Ardjmand, E., & DeJesse, C. (2022). U.S. Patent No. 11,244,278. Washington, DC: U.S. Patent and Trademark Office.

Conferences:

- Ardjmand, E., Stowe, D. L., & Stowe, J. D. (2021). Using Portfolio Theory to Design Better Exams. Southwestern Finance Association 2021 Annual Meeting.

- Ye, L., & Ardjmand, E. (2019) The Role of Gender Identity on Building Consumer Brand Relationship: SEM and fsQCA Findings. 2019 summer AMA conference.

- Rahman, S., & Ardjmand, E. (2019) Utilizing Business Analytics: To Boost Tourism. International Academy of Business Disciplines.

- Singh, M., & Ardjmand, E. (2019) Carton Set Optimization in E-commerce Warehouses. International Conference on Production Research.

- Ardjmand, E., Shore, J., & Rahman, S. (2018) Analyzing Perceptions and Attitudes of Tourists that Lead to Customer Satisfaction: An Approach to Expand Tourism. The International Academy of Business Discipline, 30th Annual Conferrence.

- Ardjmand, E., & Huh, D. W. (2017) Coordinated Warehouse Order Picking and Production Scheduling: A NSGA-II Approach. 2017 IEEE Symposium Series on Computational Intelligence (IEEE SSCI 2017).

- Huh, D. W., & Ardjmand, E. (2017) Overcoming use of Standard industry codes; Inter-industry Interactions and evolution of industries. Industry Studies Conference.

- Rahman, S., Shore, J., & Ardjmand, E. (2017). Small Businesses in Appalachia: Impact of Social Media on their operation and Opportunities. 29th IABD Annual Conference.
- Ardjmand, E., Weckman, G. R., Schwerha, D., & Snow, A. P. (2016). Analyzing the Retirement Satisfaction Predictors among Men and Women Using a Multi-Layer Feed Forward Neural Network and Decision Trees. ALLDATA 2016, 111.
- Millie, D. F., Weckman, G.R., Fahnenstiel, G. L., Carrick, H. J., Ardjmand, E., Young II, W. A., Shuchman, R. A., Sayers, M. J., & Fries, D. P. (2014). Joint Aquatic Sciences Meeting 2014.
- Millie, D. F., Weckman, G.R., Fahnenstiel, G. L., Young II, W. A., Ardjmand, E., Fahnenstiel, J. A., Shuchman, R. A., & Sayers, M. J. (2014). 7th Symposium on Harmful Algae in the US.
- Amin-naseri, M.R., Ardjmand, E. & Weckman, G.R. (2013). Training the Feedforward Neural Network Using Unconscious Search. In: Proceedings of International Joint Conference on Neural Networks (pp. 700-706). Dallas, Texas, USA: IEEE.
- Ardjmand, E., & Amin-Naseri, M.R. (2012). Unconscious Search - A New Structured Search Algorithm for Solving Continuous Engineering Optimization Problems Based on the Theory of Psychoanalysis, Advances in Swarm Intelligence. In: Y. Tan, Y. Shi & Z. Ji, (Vol. 7331, pp. 233-242): Springer Berlin / Heidelberg.

Under Review and Working Journal Papers:

- Tavasoli, A., Ardjmand, E., Shakeri, H. Maximizing the algebraic connectivity in multilayer networks with arbitrary interconnections. Journal of Complex Networks.
- Ardjmand, E., Chimeli, J., Kohl, D. & Young II, W. A. A Machine Learning Approach to Modeling Information Search Patterns. Working Paper.

Industry Experience

Observea Inc.   **Mountain View, CA**
Advisory Board Member   *April 2023–present*

- Providing technical expertise and guidance on the latest trends and advancements in the field of machine learning.
- Collaborating and helping with developing and improving machine learning models.
- Conducting research and analysis on new and emerging technologies related to machine learning and artificial intelligence.

Staples Inc.   **Framingham, MA**
Senior Analyst Inventory Analytics   *May 2015–May 2016*

- Analyzed, designed, and implemented a decision support system for optimizing stocking decisions with an estimated annual savings of $5.2M.
- Designed and implemented machine learning methods for detecting products' affinity by analyzing the customer order data and trends.
- Implemented optimization models for estimating the necessary inventory investment under various stocking decisions and scenarios.

Asre Jadid Textile Company   **Tehran, Iran**
ERP system project leader   *May 2011–May 2012*

- Analyzed and coached production line optimization project. This project improved the overall equipment efficiency of the plant by approximately 10%.
- Analyzed, Designed, and coached the implementation of an ERP and revenue management solution capable of production planning, scheduling, controlling, inventory management, and cost estimation with an estimated annual savings of $150K.

JPCO   **Tehran, Iran**
Data analyst   *Sep 2007–May 2011*

- Supervised, designed, and implemented a production scheduling system that improved the customer service time by approximately 10%.

- Supervised, designed, and implemented a near real-time decision support system for production and logistics management. This system helped the company to gain detailed insight into its performance metrics and standardize the processes.

Industry and Community Collaborations

TrendSetr:

TrendSetr is a social commerce marketplace that encompasses the key attributes of widely popular social media sites, and combines those components with the general concept of e-commerce. The collaboration with TrendSetr included:

- Utilizing network analysis and machine learning techniques to predict the sales trends and content diffusion patterns in the TrendSetr's social network.
- Applying prescriptive analytics methods to maximize businesses influence and content diffusion in the TrendSetr's social network.
- Applying network analysis methods to detect fake accounts in the TrendSetr's social network.

DHL Supply Chain:

Collaborating with DHL supply chain on:

- Applying prescriptive analytics methods to optimize order batching and picker routing in their warehouses and minimizing picking operations makespan.
- Utilizing prescriptive analytics methods to determine the optimal number of pickers in warehouses.
- Utilizing machine learning methods to estimate the outcome of batching policies in terms of picking efficiency.
- Coordinating picking and packing operations using mathematical modeling for minimizing picking makespan.
- Developing software and algorithms for mitigating the risk of infection spread among warehouse workers during order picking operations.

Maddux Sports:

Maddux sports specializes in providing winning picks on sports; including NFL, MLB, NBA, and college football and basketball winners. The collaboration with Maddux Sports included:

- Testing and evaluating several machine learning models and predictive algorithms for predicting the outcome of games.
- Developing software that takes advantage of predictive ensemble models and visualizes various game results scenarios.

Ohio University:

- designed and advised a research project whose goal was to increase the diversity of admitted students through developing machine learning algorithms that predicts a student's response to the admission offer based on the student's demographic, household income and educational background.
- The final objective of this collaboration was to design equitable policies and distribute funding opportunities among the prospective students in such a way to increase the diversity of undergraduate newcomers in conjunction with the overall enrollment.

GPD Group:

GPD Group provides architecture, engineering, planning and construction services to public and private sector clients throughout Ohio and across the United States. The collaboration with Maddux Sports included:

- Proposing optimal pavement maintenance strategies using reinforcement learning techniques.
- Consulting on developing pavement maintenance software that utilizes machine learning and optimization techniques.

Office of Dr. Huma Shakil:

- Collaborated with a local clinic located in Cumberland, Maryland, for analyzing their patient's data.
- Evaluating and proposing machine learning methods for predicting patients' no-show rate.

Frostburg's Local Businesses:

- Studying the social network usage among Frostburg's local businesses. This research was conducted for local restaurants and tourism related businesses.

Grants and Awards

Research Seed Grant $3,000
Ohio University (Spring 2020)
Pricing and competition under local externalities: a mean field theory approach

Research Seed Grant $2,500
Ohio University (Fall 2019)
Determining incentive rate to minimize time to profit in viral marketing campaigns.

Research Seed Grant $2,400
Ohio University (Spring 2019)
Integrated Order batching, picker routing and vehicle routing in manual order picking warehouses.

Research Grant $5,200
Frostburg State University (Summer 2017)
Predictive and prescriptive modeling in warehouses.

Scripps Innovation Challenge $10,000
Ohio University (Spring 2014)
Collaborated with students from other departments of Ohio University to address the challenge put up by The Columbus Dispatch- how can organizations with a large follower base on social media platforms such as Twitter, monetize their follower-base? Our solution was a data-mining algorithm named CATS.

Honors

Received College of Business Copeland Fellowship
Ohio University, Athens, OH   *Summer 2021*

College of Business Research Recognition
Ohio University, Athens, OH   *Spring 2021*

College of Business Research Mentor Recognition
Ohio University, Athens, OH   *Spring 2021*

College of Business Research and Service Excellence Award
Frostburg State University, Frostburg, MD   *Spring 2018*

Outstanding Ph.D. Student Leadership Award (nominated)
Ohio University, Athens, OH   *Spring 2015*

Co-author of editor's choice paper
Canadian Journal of Fisheries and Aquatic Sciences   *Spring 2015*

ranked 60/10,000 in Nationwide M.Sc. University Entrance Exam
Tarbiat Modares University, Tehran, Iran   *Summer 2006*

ranked 873/500,000 in Nationwide B.Sc. University Entrance Exam
Amirkabir University of Technology, Tehran, Iran   *Summer 2003*

Selected Services

Ohio University:

- Analytics task force
- Annual evaluation Committee
- Evaluation standardization Committee
- First year faculty learning Committee
- Hiring committees
- MBA curriculum task force
- Designing executive MBA program for Cleveland Clinic
- Intellectual contribution committee
- Presenting in open house webinars
- Undergraduate research advisor

Frostburg State University:

- Student advising
- Business analytics curriculum development
- Faculty senate Ad Hoc evaluation committee
- Library Liaison
- Center of excellence in teaching liaison
- Hiring committee
- Faculty evaluation committee

Student Advising:

- Advised 15 students per semester at Frostburg State University
- Advising multiple students from Ohio University's Honors Program
- Advising undergraduate research projects at Ohio University
- Advising students at Center for Consumer Research and Analytics at Ohio University
- Advising students selected for Undergraduate Research Fellowship Program

Scientific Community:

Reviewed papers for:

- European Journal of Operational Research
- International Journal of Production Economics
- Expert Systems with Applications
- Transportation Research Part E
- Applied Soft Computing
- Computers and Operations Research
- Computers and Industrial Engineering
- Informs Journal on Computing
- Journal of Intelligent Manufacturing
- Journal of Petroleum Science and Engineering
- International Journal of Production Research
- PLoS ONE
- Sustainability
- Systems
- Operational Research: An International Journal
- Papers in Regional Science
- International Journal of Industrial Engineering
- Journal of Algorithms and Computational Technology
- Journal of Geographical Systems
- IEEE Access

Seminars, Certificates and workshops

- Instructional strategies for remote and online teaching
- Remote teaching fundamentals
- Machine learning with TensorFlow on Google cloud platform
- Quality Matters (QM)
- Closing the Loop: A Mini-Conference on Teaching and Assessment
- Remote Teaching Fundamentals: Basic Course Set Up and Creating Community
- Strategies for Designing 7-Week Online Courses
- Understanding Autism in college students
- Advisor training and best practices in academic advising
- Webinar on Micro-Credentialing and Digital Badging
- Internal quality audit based on requirements of ISO 9000:2000 series
- Basics, structure and documentation of quality management system in accordance with ISO 9000:2000 series
- Staples supply chain certification program

Computer Skills

Programming: Python, R, SQL, MATLAB

Software: Gurobi, CPLEX, Tableau, SPSS, Minitab

Other: MySQL, Hadoop, Spark, TensorFlow, Cassandra, LaTeX