

Ahmad Kokhahi

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EXPERIENCE

Clemson University

Research Assistant, Teaching Assistant
Aug 2021 - Present, Clemson

Warehouse optimization (Ph.D. Thesis)

- Optimizing Robotic Mobile Fulfillment Systems (RMFS) in e-commerce warehouses improves efficiency and lowers costs. Key contributions include **energy-efficient collision avoidance**, heuristic task allocation, and a **modified A* algorithm** for dynamic path planning. Strategies like swapping and insertion enhance robot performance. Using algorithms like NSGA and ALNS, the study achieves 2 to 3% energy savings, fewer collisions, and improved throughput.

Attack detection in cyber-physical systems

- Introducing GLHAD, a **group lasso-based framework** for detecting and localizing false data injection (FDI) attacks in multistage manufacturing systems (MMS). Leveraging domain knowledge and data-driven methods, GLHAD identifies attacks in real time without labeled data. Studies demonstrate it surpasses baseline methods, enhancing detection speed and accuracy to strengthen MMS cybersecurity.

Sharif University of Science and Technology

Master Student
Aug 2018 - Aug 2020, Tehran

Hotel Recommender System (Master Thesis)

- The thesis introduces a group-based collaborative filtering algorithm for recommender systems, enhanced with **natural language processing (NLP)** for improved accuracy. Using NLP, it extracts, ranks, and weighs linguistic features from user content, enabling more personalized recommendations. This approach outperforms traditional models, offering greater accuracy and improved user experiences in e-commerce and hospitality systems.

CORE QUALIFICATIONS

- **Machine Learning:** Proficient in supervised (regression, classification) and unsupervised learning (clustering), including bias/variance theory and error metrics.
- **Data Mining:** Proficient in designing and applying algorithms for regression, clustering, classification, and prediction, with applications in market analysis.
- **Operations Research:** Expertise in discrete optimization, mixed-integer programming, and advanced network optimization techniques.
- **Algorithm Development:** Experienced in solving NP-hard problems using evolutionary approaches, heuristics, and custom implementations.
- **Statistical Modeling & Data Analysis:** Advanced knowledge of regression, time series, and predictive analytics for industrial use cases.
- **Programming & Analytics Tools:** Extensive experience with Python, R, SQL, Java, MATLAB, Gurobi, Tableau, and SAS for analytics, modeling, and visualization.

SUMMARY

Analytical Ph.D. candidate in Industrial Engineering specializing in machine learning, optimization, and data analysis. Skilled in coding custom algorithms and deriving insights through advanced statistical tools. Proficient in tackling challenges with critical thinking and technical expertise in analytics and visualization tools (SQL, R, Python, Tableau).

SKILLS

Coding Python, R, SQL, Java, MATLAB, C.

Analytics Tableau, SAS, SPSS, Minitab, Arena.

Software Gurobi, CPLEX, GAMS.

EDUCATION

Doctorate (Ph.D.) 2025
Industrial Engineering
Clemson University

Master of Science 2020
Industrial Engineering
Sharif University of Technology

Bachelor of Science 2017
Industrial Engineering
AmirKabir University of Technology

PUBLICATIONS

- Kokhahi, A., and Li, D. (2023). "GLHAD: A Group Lasso-Based Hybrid Attack Detection and Localization Framework for Multistage Manufacturing Systems." ASME. J. Comput. Inf. Sci. Eng. July 2024; 24(7): 071006.
- A Multi-Robot Task Allocation Algorithm in Robotic Mobile Fulfillment Systems Considering a Workstation Selection Rule. (Under Review).

HONORS & AWARDS

- Top 1% in Graduate School Entrance Exam (2018).
- Awarded a second major in Information Technology Engineering (2014).