Morteza Alizadeh

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SUMMARY

Ph.D. candidate trained in Industrial Engineering and Computer Science, with strong communication skills developed from extensive research experience and ability to work independently or as part of a team. Special expertise in the following areas:

- Data Analytics
- Machine Learning
- Data-driven Optimization
- Time-series Prediction & Anomaly Detection
- Object-oriented Programming
- Text Mining

EDUCATION

Mississippi State University — **Mississippi State, MS**
Ph.D. candidate in Industrial & Systems Engineering GPA: 3.9/4.0 — *Expected Graduation: Dec. 2020*

- Developing advanced data analytics methodologies for pattern prediction and anomalous states detection in multiple time-series vehicle operating data

Mississippi State University — **Mississippi State, MS**
Minor in Computer Science & Engineering GPA: 4.0/4.0 — *Expected Graduation: Dec. 2020*

- Trained various machine learning algorithms through programming and analyzing different real data sets
- Learned object-oriented programming through programming different data structures

Mazandaran University of Science and Technology — **Babol, Iran**
Master of Science in Industrial Engineering GPA: 3.91/4.0 (17.61/20.0) — *Jan. 2010 – Feb. 2012*

- Developed mixed-integer programming model, heuristic and meta-heuristic approaches for solving a Np-hard stochastic location problems with uncertain demands.

Shomal University — **Amol, Iran**
Bachelor of Science in Industrial Engineering GPA: 3.2/4.0 (15.47/20.0) — *Sep. 2005 – Sep. 2009*

EXPERIENCE

Mississippi State University — **Mississippi State, MS**
Graduate Research Assistant — *Aug. 2017 - Dec. 2020*

- **Hidden Markov Model (HMM):** Developing a HMM approach to predict patterns and detect anomalous states in a large scale vehicle operating data, including 2 years second-wise records of 101 time-series data channels
- **Hybrid ARIMA-WANN Methodology:** Combined ARIMA model with Wavelet Autoencoder Neural Network to accurately recognize the linear and nonlinear patterns in the complex time-series data channels of an operating vehicle
- **Data-driven Modeling and Optimization**: Developed a data-driven modeling and multi-objective optimization method to optimize Additive Manufacturing processes parameters considering energy consumption and part geometric accuracy
- **Text Mining**: Extending a text mining approach to identify the key research areas in the Solid Freeform Fabrication Symposium journals database
- **Supply Chain Networks Design**: Developed multiple supply chain network models for biomass energy problem, humanitarian logistics, and vessel routing for marine debris collection

Continental Tires The Americas — **Clinton, MS**
Data Science Intern — *May 2019 & 2020 - Aug. 2019 & 2020*

- **Regularized Regression**: Programmed Lasso and Ridge polynomial regression models for feature selection and cycle time prediction of production lines in manufacturing systems
- **Neural Network**: Developing a deep learning approach to increase the cycle time prediction model accuracy

Solico Group — **Amol, Iran**
Quality Assurance Specialist — *Oct. 2013 - Aug. 2017*

- **Statistical Data Analysis**: Maintained the food safety and quality management systems by statistical analysis of quality and reliability data of products
- **Operations Research**: Extended a linear programming model to determine the optimal batch sizes and weekly scheduling of the production lines

Mazandaran University of Science and Technology **Babol, Iran**
Graduate Research Assistant *Jan. 2010 - Feb. 2012*

- **Stochastic Optimization**: Developed a mix-integer programming model to solve a stochastic location-allocation problem with uncertain demands
- **Heuristics**: Extended Genetic and Colonial Competitive algorithms to solve this *NP-hard* stochastic problem

TECHNICAL SKILLS

- **Programming Language**: Python, Matlab, C++, Java, SQL
- **Mathematical Modeling**: Gurobi, Gams, Cplex, Lingo
- **Statistics**: R, SPSS, Minitab
- **MapReduce Paradigm**: Hadoop, Apache Spark
- **Simulation**: Flexsim, Arena
- **Project Control**: Primavera, MSP
- **PC Software**: LaTeX, MS Office
- **Technical Writing**: 17 publications including ISI and conference papers (*My google scholar*)

PROJECTS

- **Multinomial Logistic Regression & Multi-layer Neural Network**: Programmed these algorithms to evaluate their performance on Balance Scale and Landsat Satellite data sets of UCI Machine Learning Repository
- **Naïve Bayes**: Implemented to classify a set of emails to spam and non-spam groups
- **K-means**: Developed to compress images by reducing their color counts to various clusters
- **Anytime Weighted A***: Implemented to compare its performance with the original A* algorithm for solving two complex 8-puzzle problems
- **Data Structures in C++**: Programmed Doubly Linked List, Adjacency List and Matrix, Binary Search Tree, and Priority Queue in C++ language under object-oriented programming paradigm
- **Recursive Descent Parser**: Extended a recursive descent parser in C++ to successfully parse the source file in the input program

RECENT PUBLICATIONS

- **Alizadeh, M.**, Hamilton, M., & Ma, J. Abnormal State Detection with Hybrid ARIMA-WANN in Large Scale Time Series Vehicle Operating Data, ***Proceedings of the 2020 Institute of Industrial and Systems Engineers Annual Conference***, New Orleans, Louisiana, USA, 2020
- **Alizadeh, M.**, Esfahani, M., Tian, W., & Ma, J., Data-Driven Energy Efficiency and Part Geometric Accuracy Modeling and Optimization of Green Fused Filament Fabrication Processes, ***ASME-Journal of Mechanical Design***, 142(4), 2020
- Duan, G., Nur, F., **Alizadeh, M.**, Chen, L., Marufuzzaman, M., & Ma, J., Vessel Routing and Optimization for Marine Debris Collection, ***Journal of Cleaner Production***, 263, 121399, 2020
- **Alizadeh, M.**, Amiri-Aref, M., Mustafee, N., & Matilal, S., A Robust Stochastic Casualty Collection Points Location Problem, ***European Journal of Operational Research***, 279(3), 965-983, 2019

HONORS & AWARDS

- 2017 - 2020 Ph.D. program scholarship recipient, Department of Industrial and System Engineering, Mississippi State University, USA
- Two under review papers in ***INFORMS-Management Science*** and ***IEEE Transactions on Reliability***
- President of the INFORMS student chapter at Mississippi State University, 2020 - 2021
- Hold a workshop on "**Deep Learning with Python**" at the Department of Industrial & Systems Engineering, Mississippi State University, October 2nd, 2019
- Several conference travel awards recipient such as Graduate Student Travel Assistance Grants and Bagley College of Engineering Travel Award
- Reviewer in quality journals such as Applied Soft Computing and Computers & Industrial Engineering
- Season chair at INFORMS 2019, Seattle, WA and IISE 2018, Orlanda, FL, USA
- Attended in full-time data analysis courses such as Machine Learning, Artificial Intelligence, Cloud Computing in Big Data Mining, Data Structure, Programming Languages, etc.
- Active member of INFORMS and IISE societies