BABAK ZADE

Ghent
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1988-Aug-06

Operations Research Analyst | Optimization Solutions Engineer
Data Scientist | Statistical Analysis | Data Analyst

SUMMARY

10+ years of experience in Operations Research analytics, with applications in healthcare, operations management, and data analytics. A results-oriented data scientist with a passion for uncovering insights from complex datasets. Proficient in Python programming for data wrangling, visualization, predictive modeling, statistical analysis, and SQL for data manipulation and storage. Eager to apply data science techniques to solve real-world challenges and deliver impactful, data-driven solutions.

EXPERIENCE

Researcher
Ghent University | Ghent, Belgium 2024-Now

+ Exploring the intersection of data science and Operations Research to enhance analytical and problem-solving capabilities, particularly in healthcare and operations management contexts.
+ Strengthening skills in data science, including data analytics, data exploration, developing machine learning models, and data visualization.

Postdoctoral Researcher
Ghent University | Ghent, Belgium 2021-2024

+ Collaborated with the IT department to provide ongoing support for the algorithms developed during my PhD, ensuring their smooth implementation and integration into existing systems.
+ Developed state-of-the-art heuristic methodologies incorporating Machine Learning techniques, significantly enhancing the performance and efficiency of the original algorithms.
+ Co-supervised Master's and PhD students, guiding their research and providing mentorship in areas such as operations research, machine learning, and optimization techniques.

Ph.D. Researcher
Ghent University | Ghent, Belgium 2017-2021

+ Successfully defined the comprehensive scope of the project, presenting a compelling proposal to the medical board. Obtained their confirmation for the project and secured the necessary funding.
+ Engineered a highly efficient solution technique in C# utilizing dynamic programming and the Hungarian algorithm. The algorithm consistently achieved near-optimal solutions within 10 seconds, a remarkable improvement compared to the two hours required by commercial solvers for a feasible solution.
+ Collaborated seamlessly with the university IT team to implement the optimized solution, ensuring a smooth integration into existing systems and processes.

System analyzer and developer
Rasam Pardaz Co. | Tehran, Iran 2015-2017

+ Admission Planning Software System: Led the design and co-development of an innovative admission planning software system for hospitals, streamlining and optimizing admission processes.

+ Kanban-Based Production Planning System - STAM Sanat Co.: Design and co-development of a production planning software system based on Kanban methodology for the company, enhancing efficiency and workflow management.
+ MRP System – STAM Sanat Co.: Played a key role in the design and co-development of Material Requirements Planning (MRP) for the company., contributing to improved resource utilization and production coordination.

SKILLS

Data Science tools (Samples: github.com/BabakZade/DataScience)

+ Supervised Learning (Linear and Log Regression, Decision/Regression Tree, Neural Networks)
+ Unsupervised Learning (K-Means Clustering, Principal Component Analysis)
+ Time series analysis and forecasting models (ACF/PACF, S-AR-I-MA)
+ Data visualization (.py Matplotlib)

Programming

+ C# (MVC, LINQ, ConsolApp)
+ Python (Pandas, NumPy, Matplotlib)
+ SQL server

Optimization tools (Samples: github.com/BabakZade/MIP-Optimization-with-Python-and-Gurobi)

+ CPLEX, CP, GUROBI (in C# and Python)
+ Exact solution methodologies (Branch and Price, Branch and Cut, Branch and Bound, Dynamic Programming)
+ Metaheuristics (Genetic Algorithm, Particle Swarm Optimization, Simulated Annealing)
+ Heuristics (Problem-specific heuristics, Local search, Neighborhood search, Hill-climbing)

Teamwork

+ Trello
+ GitHub

LANGUAGE

+ Persian, Azerbaijani (C2-Native)
+ English (C1-Advance)
+ Turkish (B2-Intermediate)
+ Dutch, Arabic (B1-Intermediate)

EDUCATION

Postdoctoral researcher, Operations Research and Optimization
Ghent University | Ghent, Belgium 2021-Now

+ Project: Linking strategic, tactical, and operational decisions in the operating room department to achieve operational excellence
+ Outputs: Published three Q1 publications

Ph.D., in Business Economics (Operations Research and Optimization)
Ghent University | Ghent, Belgium 2017-2021

+ Project: Exact and Heuristic approach for different problems in healthcare
+ Output: Published five Q1 publications

Msc, in Industrial Engineering (Operations Research and Optimization)
KNT University | Tehran, Iran 2012-2014

+ Project: Simulation-based optimization for operating room scheduling problem

Bsc, in Industrial Engineering (Production Planning and Inventory Control)
OFU University | Mazandran, Iran 2009-2012

+ Project: Production planning in the wood industry, a case study in Caspian Wood Industry Co.

HARD SKILLS

Developing Predictive Models
Developing advanced machine learning models to analyze complex datasets, identify patterns, and predict future trends.

Designing Optimization Algorithms
Developing and designing innovative optimization algorithms for addressing complex real-life problems.

Integration of Data Science Methods
Applying data science methodologies to enhance and optimize algorithmic solutions.

SOFT SKILLS

+ Problem Solving (Astute, Creative, Persevere)
+ Teamwork (Persuasive, Reliable, Resourceful)
+ Time Management (Decisive, Multitasking)
+ Adaptability (Agile)

HOBBIES

Calligraphy, Photography, Bodybuilding, Cooking, and Cinema

PUBLICATIONS

+ Akbarzadeh, B., Wouters, J., Sys, C., & Maenhout, B. (2022). The Scheduling of Medical Students at Ghent University. INFORMS Journal on Applied Analytics, 52(4), 303-323.
+ For a complete list of publications, please visit my Google Scholar profile

REFERENCES

Dr. Broos Maenhout
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