Maryam Hemmati

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maryam-hemmati

EXPERIENCE

Kinaxis

Software Developer & Scrum Master, Supply.AI Department — *2022-2024, Ottawa, Ontario*

- Took ownership and managed the end-to-end testing lifecycle for new features from unit to stress tests, ensuring robustness and scalability of the solution for large client datasets.
- Designed and implemented advanced Optimization techniques and heuristics, to enhance solver efficiency by examining logs and interpreting performance.
- Ensured feature readiness for release by verifying standard code coverage, and conducting comprehensive health checks for the feature in isolation and its interactions with other components. Validated the health status of all standard unit tests through Jenkins pipelines.
- Acted as a Scrum Master, enhancing team productivity and managing sprint planning and project timelines.
- Facilitated cross teams communication, ensuring alignment on feature specifications and implementation strategies.
- **Key Projects:**
  - **Supply.AI General Release**: Imported deterministic and stochastic demand into the model, optimizing with a target of 10% optimality gap.
  - **Internal Auto-Tuning tool**: Took ownership of implementing a meta-heuristic to automatically choose the best hyperparameters for the optimization builds.
  - **Vertical Fusion**: fusing optimization exact algorithm and legacy heuristic techniques in the Bill of Material product structure, saving memory and enhancing performance.
  - **Data Beta Testing**: Facilitated beta testing on large data, tested edge cases, and reported bugs and crashes by adding an assertive build.
  - **Integer Relaxation Horizon**: Improved solver performance by relaxing parts of the calendar horizon.
  - **Binary Decision Variables**: Enhanced the model by defining binary decisions for resource and constraint utilization.
  - **Scalability**: Simplified the problem and improved the optimality gap by penalizing constraints or adding slack variables.
- **Technical Tools**: Python, C++, C#, Jenkins, Gurobi, Git, SQL, Agile tools (Jira, ServiceNow).

Canadian National Railway

Operations Research Specialist — *Apr 2021 - Oct 2021, Montreal, Quebec*

- Collaborated with the Reliability team to for data cleaning on locomotive logs and applied machine learning techniques to the processed data.
- kicked of optimization projects for scheduling intermodal terminals.
- **Key Projects:**
  - **Positive Train Control**: Implemented machine learning classification algorithm to analyze historical data and developed predictive models to classify human-based errors in railcar operations.
  - **Intermodal and Car Scheduling**: Developed a MIP model for scheduling empty cars for railcar inventory management.
  - **External Vendor Collaboration**: working with a railcar startup for the project of freight scheduling using simulation.
- **Technical Tools**: Python (Numpy, Pandas, Sklearn), SQL, PowerBI.

SUMMARY

- Software Developer with 5 years of experience in Feature Development with Machine Learning and Optimization integration.
- Expertise in developing and ownership of complex mathematical models and algorithms for large-scale problems using state-of-the-art technologies, including Python, Gurobi, C++, and C#.
- Proven leadership as a Scrum Master in agile project management, fostering team collaboration and driving successful project outcomes.

SKILLS

- **Programming Languages**: Python, C++, C#, .NET, SQL
- **Machine Learning & Optimization**: NumPy, Pandas, Scikit-Learn, Gurobi, CPLEX, OR-Tools
- **Development Tools**: GitHub, Jenkins, SonarQube, Jira, ServiceNow
- **Soft Skills**: Management, leadership, multi-tasking, effective communication skill

EDUCATION

Concordia University — **2018-2020**

Master of Applied Science - Industrial Engineering

GPA: 4.0

- **Thesis**: A Submodular Representation for Network Design Problems (Supervisor: Dr. Ivan Contreras)

University of Tehran — **2012-2016**

Bachelor of Science - Mathematics

GPA: 3.9

INDEPENDENT PROJECTS

- A submodular representation for hub network design problems with single assignments
- Dijkstra Algorithm for Directed Acyclic graph in hub network design problem.
- Dynamic Assignment Optimization Network with Reinforcement Learning.