Fangzhou Sun

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Objective

Industrial career in areas of optimization, forecasting, data analytics, with applications in production/logistics/supply chain systems control and revenue management.

Summary

- Ph.D. candidate in Operations Research in Dept. of ISE at Virginia Tech; Expected to graduate in May 2018.
- Solid knowledge in IE/OR, data science; Solid coding skills; Proficient in multiple math modeling languages.
- Hands-on project experience in building optimization/simulation-based decision support tools.
- Energetic self starter, outstanding analytical ability and strong communication skills.

Education

Ph.D. in Operations Research, Virginia Tech, Blacksburg, VA — May 2018 (expected)
M.S. in Industrial and Systems Engineering, Virginia Tech, Blacksburg, VA — 2016
- GPA: 3.91/4; Advisor: Dr. Subhash C. Sarin.

B.S. in Industrial Engineering, Tongji University, Shanghai, China — 2013
- GPA: 4.64/5; Rank: 2/55; Thesis: *Scheduling of parallel machines with group maintenance considerations.*

Graduate Coursework

Operations Research: Linear/Nonlinear/Integer/Dynamic Programming, Scheduling and Sequencing Theory, Random Processes, Simulation.
Manufacturing Systems: Manufacturing Systems Engineering, Production Planning & Control, Lean Manufacturing, Semiconductor Manufacturing.
Statistics and Mathematics: Probability Theory, Statistical Inference, Statistical Learning, Real Analysis.

Computer Skills

Programming Languages: C++, C#, VBA.
Optimization: CPLEX/OPL, AMPL.
Scientific Computing: R, Mathematica.
Database: SQL, Access.
Simulation: AutoMod, ProModel, Simio.
Others: Excel, AutoCAD, LaTeX.

Related Experiences

A Location-Inventory-Routing Supply Chain Network Design (IISE student case competition) — 2017
- Proposed a two-stage iterative approach to incorporate the strategic design and the operational level decisions.
- Refined the original IP formulation, which resulted in a more compact and tighter model. Computational test revealed that the solution time decreased by 10^3+ times.
- Coded a computer decision support tool based on our proposed approach. Visualized our solution by the multidimensional scaling (MDS) technique.

Mid-Atlantic Biomass Sorghum Feedstock Delivery Logistics Design (funded by USDA) — 2016 – present
- Proposed various sorghum feedstock logistics systems under different logistics structure, decentralization level, and ensiling (storage) method.
- Building models for these logistics systems.

Advanced Biomass Feedstock Supply Chain Design (funded by DOE) — 2015 – 2016
- Formulated a fleet management model in the design of a switchgrass-based bio-ethanol supply chain.
- Proposed the Dantzig-Wolfe decomposition framework solving a combination of two or three optimization problems in location allocation, lot sizing, and equipment routing encountered in biomass feedstock logistics.

Simulation Analysis of an Automated Material Handling System in a Semiconductor Fab — fall 2014
- Built a simulation model (on AutoMod) of the AMHS. Proposed a coding framework for simulating complex AMHS, enabling flexible adjustment of process sequences of wafers.
- Implemented and analyzed different scenarios (such as releasing and dispatching rules) for the best scenario based on cycle time and throughput. Analyzed the potential bottleneck of the AMHS.

Publications

Fangzhou Sun, Subhash C. Sarin, and Yuqiang Wang. *Integrated production and shipping scheduling for a single manufacturer and multiple customers*. Submitted to Omega.

Fangzhou Sun and Subhash C. Sarin. *Optimal inventory policy of a single-vendor-single-buyer system over finite horizon*. In preparation, target: European Journal of Operational Research.

Fangzhou Sun, Rahul Ramachandran, Maichel M. Aguayo, and Subhash C. Sarin. *A taxonomic review of biomass-biofuel supply chain problems*. In preparation, target: International Journal of Production Research.

Presentations

- *Introduction to AutoMod and AutoSched AP*. Workshop, Virginia Tech. Sep 2016
- *Integrated production and shipping scheduling for a single manufacturer and multiple customers*. INFORMS Annual Meeting, Philadelphia, PA. Nov 2015

Other Experiences

Logistics Intern, *Shanghai Volkswagen Automotive,* Shanghai, China Jul 2012 – Aug 2012

- Inquired suppliers the delivery costs of purchased parts, and updated the information in database.
- Communicated with suppliers to implement a new Just-In-Time system, to reduce the outbound logistics cost and lead time.

Vice President, INFORMS VT Chapter 2015 – 2016

- Average attendance per each seminar were 11, a 30% growth than the previous academic year.
- Won INFORMS 2016 Student Chapter Annual Award, Magna Cum Laude.

Variation Analysis for Wafer Data Using Regression and Kriging Methods fall 2013

- Built a linear regression model to predict wafer thickness. Performed the variable selection by using BIC.
- Used Kriging method to model the wafer data. Compared the performance of Kriging and linear regression.

Music Management System Design spring 2012

- Designed the database structure. Coded the interface and the internal logic by C# and MS SQL Server.

Selected Awards

Graduate Student Assembly Travel Fund, *Virginia Tech*. 2015

Outstanding Graduate, Honors Student, *Tongji University*. 2011 – 2013

Provincial 1st Prize of Chinese Physics Olympiad, *Chinese Physics Society*. 2009