Fangzhou Sun

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Summary

- 6+ years of experience in IE/OR; 3+ years of experience in data science; 7+ years of experience in programming.
- Over 5 hands-on project experiences in building optimization/simulation-based decision support tools.
- Energetic self starter, outstanding analytical ability and strong communication skills.

Education

Virginia Polytechnic Institute and State University (Virginia Tech), Blacksburg, VA

- Ph.D. in Operations Research (GPA: 3.92/4.00) — Summer 2018 (expected)
  - Advisor: Dr. Subhash C. Sarin.
- M.S. in Industrial and Systems Engineering (GPA: 3.90/4.00) — 2016

Tongji University, Shanghai, China

- B.E. in Industrial Engineering (GPA: 4.64/5.00; Rank: 2/55) — 2013
  - Thesis: Scheduling of parallel machines with group maintenance considerations.

Computer Skills

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

Graduate Coursework

Operations Research: Linear/Nonlinear/Integer/Dynamic Programming, Scheduling and Sequencing Theory, Random Processes, Simulation.

Statistics and Mathematics: Probability Theory, Statistical Inference, Statistical Learning, Real Analysis.

Manufacturing Systems: Manufacturing Systems Engineering, Production Planning & Control, Lean Manufacturing, Semiconductor Manufacturing.

Related Experience

Virginia Tech, Blacksburg, VA

(**Winner**) *IISE Student Case Competition in Logistics and Supply Chain* — Feb 2017 – Mar 2017

- Proposed an iterative two-stage approach for the strategic network design and the operational decisions.
- Refined the original IP formulation, which resulted in a more compact and tighter model. Computational test revealed a reduction of the solution time by 10^3+ times.
- Coded a computer decision support tool based on our proposed approach (C++ with CPLEX).
- Visualized our solution by the multidimensional scaling technique.

Biomass Feedstock Logistics — Aug 2016 – present

- Identified different integrated biomass feedstock supply chain problems with structural insights.
- Proposed a Dantzig-Wolfe decomposition framework for the integrated biomass feedstock supply chain problem.
- Formulated a fleet management model in the design of a switchgrass-based bio-ethanol supply chain.

Joint Supply Chain Operations — Jun 2015 – present

- Proposed structural properties and solution methods (branch-and-bound and dynamic programming) for a joint production scheduling and shipping problem with a batching feature.
- Identified the structure of the optimal shipping policy via a Lagrangian multiplier method for a joint production and shipping schedule of a vendor-buyer system. Proposed a dynamic programming-based algorithm.

Semiconductor Fab Simulation — Aug 2014 – Dec 2014

- Built simulation models (using AutoMod) of the Automated Material Handling System (AMHS).
- Proposed a coding framework for simulating complex AMHS, which allows flexible and ease of adjustment of process sequences of lots.
- Implemented and analyzed different scenarios (such as releasing and dispatching rules) for the best scenario based on cycle time and throughput. Identified the potential bottleneck of the AMHS.

Graduate Teaching Assistant — Aug 2014 – May 2016

- Prepared and instructed more than 10 different manufacturing and electrical labs.
- Presented workshops for graduate level students in using simulation softwares (AutoMod and AutoSched).
- Graded homeworks and exams, held office hours, and assisted other teaching tasks.

Volkswagen Automotive, Shanghai, China
Logistics Intern 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.

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. *A Joint Production and Delivery Schedule for 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 feedstock supply chain problems*. In preparation, target: International Journal of Production Research.

Presentations

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

Other Experience

Vice President, INFORMS VT Student Chapter Aug 2015 – May 2016
- Managed finance and memberships of the student organization.
- Raised the average weekly seminar attendance by 30% more than the previous academic year.
- Won INFORMS 2016 Student Chapter Annual Award, Magna Cum Laude.

Selected Awards & Honors

First Place Award, IISE 2017 student case competition in Logistics and Supply Chain, *IISE*. 2017
Graduate Student Assembly Travel Fund, *Virginia Tech*. 2015
Alpha Pi Mu, a national industrial engineering honor society, *Virginia Tech*. 2014
Various awards including: Outstanding Graduate, 1st Prize Scholarship, etc., *Tongji University*. 2010 – 2013
Provincial 1st Prize, Chinese Physics Olympiad, *Chinese Physics Society*. 2009