

SUMMARY

- 4+ years of experience on optimal control of manufacturing/logistics systems and revenue management.
- Over 5 hands-on projects in building optimization/simulation/statistics-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) SEP 2018 (EXPECTED)
 - o 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

COMPUTER SKILLS

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

GRADUATE COURSEWORK

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

RELATED EXPERIENCE

PROS, Houston, TX (a pricing and revenue management solution company)**Scientist Intern (Optimization)**

JUN 2017 – AUG 2017

Pareto Frontier in Revenue Management ^[1]

- Proposed a constrained stochastic dynamic programming-based approach to generate Pareto frontier of conflicting airline objectives (expected revenue vs. load factor).

Airline Customer Value Study

- Built 15+ automation tools (Python and VBA) on analyzing past flight data to estimate customer potential revenue if switch to network-based products.
- Optimized the code and reduced run time by 97%, saving weeks of overall analysis time.

3-day Hackathon

- Proposed and developed an opportunity-based dynamic flight destination recommendation engine.
- Predicted market opportunities using ridge regression with time series models.

Virginia Tech, Blacksburg, VA**(Winner) IISE Student Case Competition in Logistics and Supply Chain**

FEB 2017 – MAR 2017

- Proposed a two-stage approach for the strategic network design and the operational decisions.
- Proposed tight mathematical formulations and used decomposition to accelerate. 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).

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 ^[3,4]

JUN 2015 – JUN 2017

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

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, allowing flexibly adjusted process sequences.
- Analyzed different scenarios (multiple releasing and dispatching rules) based on cycle time and throughput.

Graduate Teaching Assistant

AUG 2014 – MAY 2016

- Prepared and instructed 10+ different manufacturing and electrical labs.
- Presented workshops for graduate level students in using simulation softwares (AutoMod and AutoSched).
- Graded homework 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

- [1] **Fangzhou Sun**, Wei Wang, and Darius Walczak. *On generating efficient frontier for expected profit contribution and resource utilization*. In preparation.
- [2] **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.
- [3] **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.
- [4] **Fangzhou Sun**, Subhash C. Sarin, and Yuqiang Wang. *Integrated production and shipping scheduling for a single manufacturer and multiple customers*. Submitted to Journal of Scheduling.

PRESENTATIONS

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

OTHER EXPERIENCE

Vice President, INFORMS VT Student Chapter

AUG 2015 – MAY 2016

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

SELECTED AWARDS AND 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