Nicholas Kullman

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Summary of Qualifications

- OR experience – vehicle-routing internship, thesis in multi-objective optimization
- Strong quantitative skills – B.S. in Physics (3.98 GPA), finishing M.S. in QERM
- Innovative – 15+ patents, plus contributions to a variety of technical projects
- Fast-learner; effective problem solver and communicator; able to adapt and collaborate
- Computer programming – Java, Python, D3, CPLEX, JavaScript, ArcGIS, HTML, R

Education

Polytech Tours – Ph.D. Computer Science; Speciality: Operations Research (Current)

Dissertation topic: Electric Vehicle Routing Optimization

University of Washington – M.S. Quantitative Ecology & Resource Management (2016)

Thesis title: *Quantifying Conflict Among Competing Objective Functions in Multi-Objective Optimization*

University of Missouri – B.S. Physics (2011)

Graduated Phi Beta Kappa with departmental and Latin honors (summa cum laude, 3.98 GPA). Minor in mathematics. Semester abroad: Barcelona, Spain. Foreign language: Spanish

Selected Academic experience

Research Intern – Electric Vehicle Routing Optimization, Polytech Tours (2016)

Optimized routing of electric vehicles using stochastic dynamic programming.
Formulated model and model assumptions and simulated queuing processes.
Developed and maintained project's Java codebase on GitHub.

Graduate Research Assistant – University of Washington (2013-2016)

Established framework for the quantification of conflict among competing objective functions in multi-objective optimization.
Quantified risk of climate change destabilizing tradeoff relationships between ecosystem services in the Deschutes National Forest using multi-objective mixed-integer programs.
Developed user-friendly software to solve multi-objective optimization problems using IBM's CPLEX optimizer and its Java Concert Technology.
Designed web-based interactive visualizations of optimization results using Javascript library D3.

Graduate Teaching Assistant – University of Washington (Spring 2016)

Created and taught labs for SEFS 540 - *Optimization Techniques for Natural Resources*.

Undergraduate Teaching Assistant – University of Missouri (Autumns 2009, 2010)

Led problem solving and discussion sections for undergraduate physics sequence.

NSF REU Research Assistant – University of California, Davis (Summer 2010)

Determined the non-existence of exoplanets around dwarf stars using the transit method.

Selected Presentations

"Electric vehicle routing with mid-route recharging and uncertain charging station availability" — **INFORMS Annual Meeting 2016** (11/13/2016)

"Quantifying conflict between competing forest ecosystem services under alternative climate scenarios" — **INFORMS Annual Meeting 2016** (11/16/2016)

"Impacts of climate change on conflict among forest ecosystem services" — **Precision Forestry Cooperative Annual Board Meeting 2016** (10/20/2016)

"*Measuring conflict: Computing the hypervolume of a pareto frontier*" — **Guest lecturer: Optimization Techniques for Natural Resources** (5/25/2016)

"*Multiobjective optimization & the impacts of climate change on the joint provision of forest ecosystem services*" — **INFORMS Annual Meeting 2015** (11/3/2015)

Selected Professional Experience

Telecom Design Engineer – Sprint (2011-2013)

Served as subject matter expert on the use of bi-directional amplifiers in LTE networks.
Designed and led product testing for site-level telecom equipment.
Mitigated threats from intermodulation through quantitative analysis of unstable frequency combinations.

Selected Patents

US Pat. 8,896,497: Communications-tower antenna mount

US Pat. 8,897,383: Enhanced multipath environments for MIMO wireless networks

US Pat. 20,140,321,367; European Pat. EP 2989852: Wireless communication system with multiple Device-to-Device (D2D) communication configurations

US Pat. 9,445,389: Utilization of relay nodes with beamformed communications

US Pat. 9,319,991: Dynamically adjusting power settings based on a gain mapping file

US Pat. 9,288,711: Systems and methods for dynamically adjusting drop-timer thresholds based on loading

Community Involvement

Uptown Alliance - Transportation committee, Parks committee

US Dept. of Transportation's Beyond Traffic Forum - volunteer