Rui Yang

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Education

North Carolina State University, Raleigh, NC — August 2013 – May 2015
Master of Operations Research

Stevens Institute of Technology, Hoboken, NJ — August 2011 – May 2013
Master of Science in Stochastic Systems and Optimization

Tianjin Normal University, Tianjin, China — September 2007 – June 2011
Bachelor of Science in Information and Computational Science

Graduate-level Courses

Advanced Calculus, Linear Programming, Convex Optimization, Numerical Methods of Optimization, Stochastic Programming, Probability, Mathematical Statistics, Stochastic Processes, Time Series & Statistical Learning, Multivariate Data Analysis, Design and Analysis of Algorithms, Computer Performance Modeling, Computer Simulation Techniques

Teaching Experience

North Carolina State University, Raleigh, NC
Teaching Assistant – Hold weekly office hours to assist students with the class material and grade homework

- CSC & OR 579 Introduction to Computer Performance Modeling — Spring 2015
- ISE & OR 762 Computer Simulation Techniques — Fall 2014
- ST & BUS 350 Economics and Business Statistics — Spring 2014
- ST 435 Statistical Methods for Quality and Productivity Improvement — Fall 2013

Stevens Institute of Technology, Hoboken, NJ
Student Grader – Graded homework and provided solutions

- MA 230 Multivariable Calculus and Optimization — Spring 2013

New Oriental School, Tianjin, China
Math Tutor – Provided tutoring for 20 high school students to improve their mathematics skills — March 2011 – July 2011

Professional Experience

Ping An Stock Company, Tianjin, China — July 2010 – September 2010
Summer Intern

- Collected and processed daily market value, price trends, volume, market breadth, and best performing sectors using Excel
- Provided remote assistance for clients in using the online trading system

Projects

Big Data Analytics with Apache Spark — June 2015

- Analyzed web server log (HTTP requests to the NASA Kennedy Space Center web server) and performed entity resolution across two data sets of commercial products (Google and Amazon) by using Apache Spark
- Performed collaborative filtering for movie recommendations by using Apache Spark's MLlib

Estimation of Energy Performance of Residential Buildings using Multivariate Analysis — April 2015

- Investigated the relationship between the predictors and responses of an energy efficiency data set of residential buildings using general linear regression model
- Applied Principal Component Analysis to reduce the dimension of the variables and machine learning algorithms (K-Nearest Neighbors, Classification and Regression Tree and Support Vector Machine) in R to find the classification rules for the data set and the optimal parameters for each model

Comparisons of Different Shortest Path Algorithms October 2013 – November 2013

- Investigated the relationship between the density of a graph and the performance of Dijkstra's algorithm and Floyd-Warshall algorithm through comparing the runtime of these two algorithms based on both sparse and dense graphs
- Compared the performance of Dijkstra's algorithm and D* algorithm by using them to find a new shortest path after removing an edge from the original graph

Multivariate Analysis of the Regular Season Records of Five NBA Teams April 2013 – May 2013

- Collected the regular season records of five NBA teams in 23 seasons (1990/1991 to 2012/2013), and performed multiple regression to model the relationship between their regular season ranks and their technical statistics
- Modeled the relationship between the teams' qualifications for NBA playoffs and their technical statistics using Discriminant Function Analysis and Stepwise Discriminant Function analysis in SAS

Optimization of the Revenue Generation for Universal Studios November 2012 – December 2012

- Collected the total revenue, production budget and the genre of every movie that was released by Universal Studios in the period of 2000 to 2011
- Suggested various decision rules for Universal Studios to optimize their portfolio in future investments by implementing machine learning algorithms (C4.5, ADTrees and CART) in Weka

Two-stage Stochastic Optimization Problems July 2012 – March 2013

- Solved two-stage optimization problems with stochastic ordering constraints on the recourse function by using the multi-cut method
- Improved the multi-cut method by applying the regularized decomposition algorithm

Skills

Programming: Matlab, Mathematica, SAS, R, Python, Spark, CPLEX, C/C++, SQL
Software: Microsoft Word, PowerPoint, Excel, FrontPage, JMP

Awards

Second prize in China Undergraduate Mathematical Contest in Modeling (CUMCM) September 2009

Leadership

Orientation Leader, Stevens Institute of Technology August 2012