Joshua Agterberg

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Education

2017-Present   Johns Hopkins University
                Master of Science in Engineering in Applied Mathematics and Statistics
                Advised by Professor Carey Priebe
                GPA: 4.0/4.0

2013 – 2017   University of Wisconsin-Madison
                Bachelor of Business Administration, Major in Actuarial Science and Mathematics
                Advised by Professor Marjorie Rosenberg
                GPA: 3.73/4.0, Actuarial Science Major GPA: 4.0/4.0

Honors and Awards

Spring 2017   DW Simpson Scholarship
Fall 2016   Bicknell Scholarship
2013-2014   Arthur C. Nielsen Scholarship
2013   Directly Admitted to Wisconsin School of Business
2014-2017   Dean's list (>3.8 Semester GPA – achieved five separate times)

Projects

2017-Present   Seeded Graph Matching

                Writing R code for SPLR object (a sparse plus low-rank matrix) for faster calculations and
                cheaper storage of centered adjacency matrices under direction of Daniel Sussman.

2015-Present   Clustering in Insurance

                Examine the effectiveness of K-medoids (PAM) algorithm on 2010 NHIS survey dataset
                under direction of Margie Rosenberg.

                Implementing weighted Goodall's dissimilarity index in R and Rcpp to measure difference
                between observations when data are categorical.

2017-Present   `catDist` R Package

                Personal project implementing several different categorical dissimilarity measures for use
                with K-Medoids and spectral clustering methods.

2017-Present   Dominion

                Personal project implementing popular board game *Dominion* in Java.

Professional Experience

2017   **Analytics Intern**, CNA Financial, Chicago, IL

Examined the predictive value of FDA data on losses for products and professional liability for medical devices.

Cleaned and edited FDA data to merge with internal data and Dun and Bradstreet data. Modeled losses in R using a GLM with Tweedie family and log-link to account for zero-inflation.

Created univariate with-without plots to examine effect of specific FDA variables on losses

2016-2017   **Grader**, Wisconsin School of Business

Grader for three courses: ActSci 650 (Spring 2016), ActSci 651 (Fall 2016), and ActSci 655 (Spring 2017)

2016   **Actuarial Intern**, CNA Financial, Chicago, IL

Developed a Markov Chain model for predicting the probability of payment for insurance claims given the current legal state.

Generated piecewise linear splines to implement time dependence of Markov Model.

2013   **Actuarial Intern**, CUNA Mutual Group, Madison, WI

Created spreadsheets from scratch to replicate GAAP and Statutory reserves results from PolySystems for equity-indexed annuity policies as a control for auditors.

Analyzed mortality experience study data in Excel by comparing actual to expected ratios with the proposed new table and helped management determine to use new table across all annuity products.

2013-2017   **Piano Teacher**, UW-Madison School of Music

Skills and Qualifications

Proficient in R, Java, Python, Linux, Git, C++ (Rcpp), Matlab, LaTeX, Microsoft Excel, and VBA

Actuarial exams passed: Exam P (July 2014); Exam FM (February 2015), Exam MFE (July 2016); Fulfilled Econ, Finance, and Statistics VEE

Quantitative Courses Taken

Johns Hopkins
      553.730 Statistical Theory I
      553.720 Probability Theory I
      553.761 Nonlinear Optimization I
      553.762 Nonlinear Optimization II
      553.766 Combinatorial Optimization
      553.739 Statistical Pattern Recognition
      553.721 Probability Theory II

University of Wisconsin-Madison
      Math 431 Introduction to Probability
      Math 514 Numerical Analysis
      Math 521 Real Analysis
      Math 522 Real Analysis II
      Math 525 Linear Programming
      Math 531 Probability Theory
      Math 629 Introduction to Measure Theory
      Math 632 Introduction to Stochastic Processes
      Math 635 Introduction to Stochastic Calculus
      Stat 310 Mathematical Statistics
      ActSci 650 Life Contingencies I
      ActSci 651 Life Contingencies II
      ActSci 652 Loss Models
      ActSci 654 Regression and Time Series For Actuaries
      CS 367 Introduction to Data Structures
      Finance 320 Investment Theory

Extracurricular Activities and Interests

Spring 2016   *Directed Reading Program – Machine Learning*

              Read about Machine Learning techniques and implemented common algorithms in MATLAB.

              Met weekly with a graduate student to discuss the material and gave a talk to a small group the end of the semester about the concepts.

2013-2017   *Jazz Piano*

              Perform with University of Wisconsin ensembles each year

2013-2017   *Improv Comedy*

              Perform with University of Wisconsin Iceberg Improv (formerly Titanic Players)

2015-2016   *Wisconsin Union Directorate – Performing Arts Committee*

              Worked as Assistant Jazz Director for the Performing Arts Committee.

              Booked the 2016-2017 Union Theater Jazz Season and handled logistics for the 2015-2016 season.

Interests   Playing Jazz, skiing, and board games