Daniel W.L. Prentice

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Education

PhD in Statistics, University of Minnesota, Minneapolis, MN, expected 2017
College of Liberal Arts First Year Graduate Fellowship, Lynn Lin Award for Excellence in Applied Statistics
Bachelor of Arts in Mathematics, with Honors, Grinnell College, Grinnell. IA, May, 2011
Cumulative GPA of 3.95/4.0, Dean's List, Phi Beta Kappa

Technologies

Highly adept with major analytics packages, including **R**, **SAS** and **Matlab/Octave** and experience writing functions/packages to extend functionality of these programs. Firm understanding of **Relational Databases**, including table planning and deployment, and proficiency in **SQL**. Can work with big data in **Hadoop** using **Hive** and **Impala**. Can create interactive web visualizations with **D3** or **R**. Proficient in major programming languages, including **Java**, **C**, **C#** and **Python**. Familiarity with **shell scripting**. Strong knowledge of Geographic Information Systems, including **ArcGIS**. Experience with all major operating systems and office suites. Quickly learn new technologies and programming languages.

Skills

- Expert knowledge of probability and statistics, including experimental design, predictive modeling, optimization, and causal inference.
- Deep knowledge of machine learning concepts: regression and classification, clustering, feature selection, curse of dimensionality, bias-variance tradeoff, neural networks, SVMs, etc.
- Experience designing and executing experiments.
- Modeling complex relationships in the presence of many confounding factors.
- Ability to analyze a wide variety of data: structured and unstructured, observational and experimental.
- Experience architecting and deploying machine learning systems to production.
- Demonstrated success presenting complex research data (qualitative and quantitative) in a clear and compelling manner that inspires action.
- Knowledge of convex and non-convex optimization methods for maximum likelihood model fitting and Markov Chain Monte Carlo methods for posterior sampling.
- Coursework in experimental design and analysis, including both classical and optimal design methods.
- Knowledge of decision theory, including ability to choose loss functions matching real world goals.
- Can quickly learn theory and practice of new analytic methods.
- Ability to grasp business constraints and make practical, usable models.
- Excellent written and verbal communication and presentation skills for non-technical audiences

Experience

Data Scientist, Seagate, Bloomington, MN, May 2015- Present
Operate independently to find insights with business value; work with developers to deploy models. Model complex relationships in the presence of many confounding factors. Advise engineering and product teams on sound statistical practices. Architect and deploy machine learning systems to production. Present complex research data (qualitative and quantitative) in a clear and compelling manner that inspires action. Design and implement metrics that align with company goals.

- Used SQL and R to fetch data and develop predictive models for wafer measurements based on process inputs, allowing a reduction in metrology steps.

- Pushing R to Hadoop using RHadoop for parallel processing.
- Bootstrapped Suboptimal Process Identifier Framework from a single model to flag high risk recipes for a single toolset to a factory-wide reporting framework combining 3 models into daily reports customized based on user role. To date it has averted multiple production bottlenecks by increasing tool throughput, and reduced cycle time by thousands of hours.
- Created new metrics for cycle time and tool capacity that are superseding previous metrics among the factory engineers.
- Achieved renewed funding for my position based on presentations to non-technical VP level site manager and documented successes

Quantitative Analysis Consultant, Data Analysis and Social Inquiry Lab, Grinnell College, 2011
Facilitated the use of quantitative methods in faculty and student research.

- One of four students college-wide selected for the position
- Designed and implemented statistical and geospatial analyses for faculty and student research
- Achieved renewed funding based on documented success

Student Researcher at Microsoft Research Asia, Beijing, China, 2010
Collaborated with teammates to develop new semantic search and taxonomy database technologies.

- Selected for highly competitive "Research Experience for Undergraduates" (a National Science Foundation program) by UCLA Institute for Pure and Applied Mathematics
- Worked independently to implement a word frequency vector approach to identify instance similarity by the angle between the vectors, and then designed a thresholding system to discard less relevant results
- Used click data to build click graphs and then identify cycles to develop user relevancy models
- Worked with team and mentor to prepare results for submission to major conference

Graduate Instructor, University of Minnesota, Minneapolis, MN, 2014
Lead instructor for intermediate level Statistics course with 100+ students.

- Manage all aspects of a large class, including online and lab components
- Create engaging lectures highlighting the importance of critical thinking and data literacy

Teaching Assistant, University of Minnesota, Minneapolis, MN, 2013
Conducted Lab Sessions for students in introductory applied and Master's level theoretical courses.

- Managed large classrooms
- Successfully explained difficult concepts to students

Awards, Honors and Achievements

Academic

- College of Liberal Arts First Year Graduate Fellowship, University of Minnesota
- Lynn Lin Award for Excellence in Applied Statistics, University of Minnesota
- Phi Beta Kappa Member, Selected Junior Year
- Dean's List, Grinnell College
- Grinnell College Trustee Scholarship Recipient
- Grinnell College Martin Luther King Scholarship Recipient
- COMAP Mathematical Contest in Modelling Honorable Mention, 2010
- National Merit Scholarship Winner

Athletic

- Collegiate Water Polo Association Academic All-American Honors
- Member of 2007 Division III National Championship Runner-Up Grinnell College Water Polo team
- Captain, South Salem Saxons Men's Varsity Water Polo