Susan Vanderplas

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About me I am a data engineer, that is, I transform data into informed decisions by building and interpreting mathematical models. I work with subject matter experts to understand and quantify prior knowledge, then incorporate data to create robust, accurate predictive models. These skills can be applied to variables such as day-ahead and real-time markets, network congestion, load balancing, megawatt valuation, and rate outlook, which I believe will greatly benefit NPPD.

Education

Iowa State University
2015 - Ph.D. in Statistics; GPA 3.71
2011 - M.S. Statistics; GPA 3.69

Texas A&M University
2009 - B.S. Psychology and Applied Mathematics; GPA 3.88

Skills

Statistical Techniques

- Estimation
- Prediction (with error bounds)
- Multivariate modeling
- Risk assessment
- Reliability analysis
- Time Dependent models
- Monte Carlo methods
- "Big Data" analysis
- Market Test design

Computer Skills

- R (statistical programming)
- SAS statistical software
- Interactive dashboard design
- C, C++
- JavaScript
- Software development
- Database design (SQL)
- Microsoft Office
- Windows and Linux

Experience

Industrial Statistics   **2012-2015**

- Estimated capacity factor and number of maintenance issues for an industrial site, compensating for a longer length between maintenance cycles. Accurately predicted the number of maintenance outages that occurred during the first 24-month cycle using 18-month cycle data.
- Assembled locational marginal price data from several regional transmission operators to examine the financial impact of scheduling power plant maintenance on weekends and holidays and explore the conditions leading to negative power prices.

Cross-discipline collaboration (with materials engineering)   **2010-2011**

Increased accuracy and efficiency of peak detection (vs. manual identification) using robust quantile analysis.

Iowa Department of Transportation   **2012**

Examined the effect of road layout and construction on driver safety (collisions, fatalities).

USDA Soybean Genome Project   **2013 - 2015**

Built models and interactive web applications to explore the influence of genetic mutations on soybean yield.

Postdoc, Iowa State Office of Vice President for Research   **2015**

Evaluated ROI and profitability of funding models for faculty research.

Google Summer of Code   **Summer 2013, 2014, 2015**

Worked on development of a software package to create interactive web graphics using R, and returned to serve as a mentor for the project in 2014 and 2015.