Trenton Pulsipher

Sr Data Scientist, Henry Schein One
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Skills

Machine Learning | Data Mining | Visualization | Statistics | Big Data | R | Tableau | SQL

Employment

Henry Schein One   *Sr Data Scientist* (American Fork, UT)   Apr 2017 - Present

I lead the data science effort at HS One, including being the primary promoter of data governance, business process and data warehouse documentation, and analytical best practices.

With the help of interns that I mentor/manage, we built a robust machine learning predictive modeling and reporting framework to speed delivery of our data science project deliverables. Using machine learning algoritms we identified customers at-risk of attrition (saving nearly $10M in 3 years) and improved marketing messaging and sales lead generation through enhanced customer segmentation.

We created web-based tools to share analytical results with the sales, customer success, and marketing teams internally. Such tools were built from scratch in Linux to share interactive JavaScript based apps via HTML pages in a Markdown/Hugo generated website using R as the general engine.

I also support the business operations team's effort to improve the data warehouse architecture, dimensional modeling, and reporting services (Salesforce and Tableau).

Category Partners   *Sr Analyst* (Idaho Falls, ID)   Apr 2016 - Apr 2017

As the senior analyst of a five person startup I led the analysis, visualization/dashboard efforts of IRI/Nielsen syndicated data for grower/shipper clients in the produce category.

The Church of Jesus Christ of Latter-day Saints   *Data Analyst / Statistician* (Salt Lake City, UT)
Dec 2014 - Apr 2016

As a data analyst in the Missionary Department I was responsible for all data science related analytical efforts within the department, including: data wrangling, modeling, predictive analytics, visualization, data discovery/exploration, and communication of results to the highest level of leaders/executives in the Church. I established knowledge sharing of advanced analytics best practices.

Pacific Northwest National Laboratory   *Statistician* (Richland, WA)   Jul 2009 - Dec 2014

Implemented Bayesian model averaging (BMA) as an ensemble-based machine learning method to incorporate predictions from multiple experts or model systems. Successful application of BMA

include modeling of response surfaces numerically generated from multiple expert-derived 3D conceptual models characterizing sites for carbon sequestration, and have improved predictive performance for ensemble-based applications in image classification (computer vision), power grid demand modeling, pKa protein analysis, and sensor degradation signature discovery. Coauthored multiple peer-reviewed journal articles and conference papers demonstrating expertise in BMA related applications. Contributed to the development of three invention disclosures and one non-provisional patent submission (pub number: 2013/0297,538).

Developed statistical methodology to spatially allocate weather similar regions using climate data. Reduction of the number of weather similar regions and of the number of building types will save climate modelers and power grid researchers at least hundreds of hours of computation and analysis time when using PNNL's complex regional earth systems simulation modeling framework, PRIMA. Formed a two-tiered PAM clustering approach to adequately describe a subset of representative building types. Managed Big Data and parallelized statistical computations using datadr and Rhipe, R packages designed to interact with the Hadoop framework via Map/Reduce on PNNL's institutional supercomputer and a Hadoop cluster.

Performed multiple complex data analyses for other project work related to a variety of areas, including: building energy modeling, power grid modeling, bio-forensics of biowarfare growth media, river salmon population studies, air chemical analysis, uncertainty quantification for visualization of carbon sequestration, and several early drug development clinical trial related analyses.

Massachusetts General Hospital   *Biostatistician* (Boston, MA)   Jun 2007 - Jul 2009

Tested models for early detection of ovarian cancer in clinical trial data. Examined longitudinal protein biomarker profiles from blood/serum. Calculated sensitivity and specificity for predicted data from logistic regression of potential biomarker combinations from cancer case/control studies.

Education

Brigham Young University, MS Statistics   2007

Brigham Young University, BS Statistics   2005

Publications

Journal Articles   Hejazi MI, Voisin N, Lui L, Bramer LM, Fortin DC, Hathaway JE, Huang M, Leung LR, Li HY, Patel PL, **Pulsipher TC**, Rice JS, Tesfa TK, Vernon CR, Zhou Y. 2015. "21st century United States emissions mitigation could increase water stress more than the climate change it is mitigating." *Proc Natl Acad Sci USA* 112(34):10635-40.

Gosink LJ, Bensema K, **Pulsipher TC**, Obermaier H, Henry MJ, Childs H, Joy K. 2013. "Characterizing and Visualizing Predictive Uncertainty in Numerical Ensembles Through Bayesian Model Averaging." *IEEE Transactions on Visualization and Computer Graphics* 19(12):2703-2712

Gosink LJ, Hogan EA, **Pulsipher TC**. 2013. "Bayesian Model Aggregation for Ensemble-Based Estimates of Protein pKa Values." *Proteins: Structure, Function, Bioinformatics* 82(3):354-363

Vlachopoulou M, Gosink LJ, **Pulsipher TC**, Ferryman T, Zhou N, Tong J. 2013. "An Ensemble Approach for Forecasting Net Interchange Schedule." *Power and Energy Society (PES) General Meeting 2013 IEEE*

Stephan CN, Amidan B, Trease H, Guyomarc'h P, **Pulsipher TC**, Byrd JE. 2013. "Morphometric Comparison of Clavicle Outlines from 3D Bone Scans and 2D Chest Radiographs: A Shortlisting Tool to Assist Radiographic Identification of Human Skeletons." *Journal of Forensic Sciences* 59(2):306-313

Nackos AN, Truong TV, **Pulsipher TC**, Kimball JA, Tolley HD, Robison RA, Bartholomew CH, Lee ML. 2011. "One-step conversion of dipicolinic acid to its dimethyl ester using monomethyl sulfate salts for GC-MS detection of bacterial endospores." *Anal. Methods* 2011(3):243-258

Yurkovetsky Z, Skates SJ, Lomakin A, Nolen B, **Pulsipher TC**, Modugno F, Marks J, Godwin A, Gorelik E, Jacobs I, Menon U, Lu K, Badgwell D, Bast Jr RC, Lokshin AE. 2010. "Development of a Multimarker Assay for Early Detection of Ovarian Cancer." *Journal of Clinical Oncology* 28(13):2159-2166

Addona TA, Abbatiello SE, Schilling B, Skates SJ, Mani DR, Bunk DM, Spiegelman CH, Zimmerman LJ, Ham AL, Keshishian H, Hall SC, Allen S, Blackman RK, Borchers CH, Buck C, Cardasis HL, Cusack MP, Dodder NG, Gibson BW, Held JM, Hiltke T, Jackson A, Johansen EB, Kinsinger CR, Li J, Mesri M, Neubert TA, Niles RK, **Pulsipher TC**, Ransohoff D, Rodriguez H, Rudnick PA, Smith D, Tabb DL, Tegeler TJ, Variyath AM, Vega-Montoto LJ, Wahlander A, Waldemarson S, Wang M, Whiteaker JR, Zhao L, Anderson NL, Fisher SJ, Liebler DC, Paulovich AG, Regnier FE, Tempst, Carr SA. 2009. "Multi-site assessment of the precision and reproducibility of multiple reaction monitoring-based measurements of proteins in plasma." *Nature Biotechnology* 27:633-641

Other Publications   Baker NA, Dowling C, Gosink L, **Pulsipher TC**, Sansone SA. 2014. "Informatics Approaches to Data Preservation and Analysis in Protein Electrostatics." *Biophysical* 108-2(369A)

Awards

R&D 100 Award   2015 R&D Magazine. "Power Model Integrator: A system for more accurate energy forecasts."

Patent   "System and Method of Designing Models in a Feedback Loop." Patent issuer and numberus 13/869,290