Bryan P. Dannowitz

Data Scientist, Physics PhD, Generalist

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TL;DR

I have a track record of working on challenging problems in the fields of particle physics and predictive modeling. In seeking out a varied set of endeavors, I have been able to develop contrasting, yet complementary skill sets. Inventiveness and intellectual freedom motivate me, and I have only ever experienced this in the wake of truly difficult problems. As an employee, I use this motivation to actively seek out such opportunities and deliver clean, creative, effective solutions.

Experience

2019 - Pres. Centene Corporation, Data Scientist III.

- **♥** Clayton, Mo
 - o Project: Pre-Pay Claims Editing Suite
 - o Project: Interest Prediction
 - Refactoring
 - asdf
 - asdfasdf
- 🎗 Python, Jupyter, Git, Scikit-Learn, Docker, CI/CD, Bash, Oracle, MongoDB

2016 – 2019 Bayer Crop Sciences, Data Scientist.

- **9** Creve Couer, Mo
 - Project: Geospatial regionalization of agricultural markets, utilizing GIS algorithms, graph analytics, and unsupervised clustering methods. These regions are currently deployed and utilized at the core of the business.
 - Project: Agricultural pest modeling, utilizing time-series environmental data from disparate sources. Constructed a unified modeling pipeline for regression and classification pest predictions.
 - \circ Project: Individually managed an intern on an NLP, sequence modeling, imbalanced classification problem with 100+ classes. Final product applied to service ticket system, potentially saving \sim 1000 man-hours.
 - Co-authored a unified Data Science Best Practices policy, along with rollout and training plan. Adherence bolsters the integrity and stability of data products. Conducted company-wide hackathons.
- 🛪 Python, Jupyter, Scikit-Learn, Keras, Git, Docker
- 2009 2016 SeaQuest Experiment, Research Assistant.
 - **♥** Fermi National Accelerator Laboratory, Batavia, IL
 - **1** University of Illinois at Urbana-Champaign, Urbana, IL
 - Trained a classification model to predict systematic unknowns for periods with malfunctioning sensors. This salvaged valuable data-taking, equivalent to \$75k.
 - o Implemented a responsive Flask-powered Python web front-end for live experimental visualizations.
 - Developed Python ETL framework for the retrieval, cleaning, merging, and analysis of data.
 - o My analysis provided the first significant measurement of an outstanding physical mystery since 1993.
 - 🗙 Python, Git, Bash, C, SVN, LATEX

Skills

- Machine Learning Principles: Choosing the right metric for evaluation. Deliberate data partitioning and model validation. Model selection, model tuning, understanding when more data will/won't help. Creating a unified pipeline to process expected inputs. Model health monitoring practices, covariate drift detection.
- **Deep Learning:** Knowing if, how, and when to apply dense, convolutional, and/or sequential models to the problem at hand. How to take advantage of pre-trained models for similar tasks.
- **Software Best Practices:** Consistent, modular, linted code. Thorough self- and external documentation. Versioned with a deliberate branching strategy. Thoughtful and consistent unit-testing and code review.

Education

2009 – 2016 Ph.D. in Experimental Physics, UIUC, Urbana, IL.

DISSERTATION Nuclear dependence of proton-induced Drell-Yan dimuon production at 120GeV at SeaQuest

2004 – 2008 **B.S. in Physics**, New Mexico Institute of Mining and Technology, Socorro, NM.