

BRIAN GRINER, PhD

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<https://github.com/briangriner>

Data science / AI / statistical modeling consultant and researcher with 15+ years' experience analyzing healthcare data covering: marketing science (market research surveys), commercial analytics (physician scripts, sale force details/non-personal promotions, payer/provider organizational associations), Health Economic Outcomes Research (Electronic Health Records/patient medical and pharmacy claims). Able to apply a diverse set of analytic frameworks (econometrics, statistics (Bayesian, biostatistics), machine/deep learning, Bayesian networks) to provide strategic business insights, predict market impact and business value. Ability to quickly understand client needs and utilize the client's data resources to create insightful research findings from models that identify key business drivers and predict business impact from changes in key drivers. Models can be applied to score databases to support tracking of key performance metrics associated with promotional activities.

Data/ML engineering consulting for data science teams working in enterprise high-performance computing environments (Azure, GCP, AWS and onsite Linux server environment). Able to provide support with prepping data inputs, setting up ML pipeline code for data prep/cleaning, model testing, selection and deployment to new data inputs or REST API.

SKILLS

Management

- 10+ years experience managing internal and external clients, direct reports, and client projects
- Experience working with clients to translate their questions into focused analytic workstreams to analyze complex, real world data sources using advanced analytic methods to deliver clear, actionable insights
- Strong written, verbal and presentation skills to business audiences
- Ability to translate analytic concepts and insights to non-technical audience using business acumen to connect analytic insights to answer key business questions.
- Develop advanced analytics teams through team collaboration and individual mentoring.
- Experience working with diverse, cross-functional teams on high profile projects to produce high value, integrated insights

Analytics

- Ability to create innovative analytic insights that leverage concepts in Statistics, Statistical Learning, Econometrics, Marketing Science, Machine Learning, and Deep Learning to integrate and analyze complex Real World Data physician and patient claims for commercial insights.
- Examples include:
 - Physician segmentation and targeting using integrated patient claims; physician, provider, healthcare organization profiles to create and predict individual segment membership to create target list for physician engagement model.
 - Created text analyzer class for sentiment analysis of web pages, text files and strings using Python builtins, beautiful soup library and custom positive / negative word lists. Contains methods to calculate and plot word and character distributions, properties for total and distinct word counts, avg word length and a document positivity score as well as unit testing
 - Experience working in Azure, GCP, AWS as well as online Linux and Windows Server environments. Other languages I have working experience with include: R, SAS, Unix/Linux shell, SQL (primarily for creating views and derived metrics for analytic datasets) in Oracle, MySQL, Snowflake, Redshift, (some Spark using SQL context/PySpark) and Python via ODBC or Database API v2.0
 - Development of interactive dashboards that use predictive models in PowerBI. For example,
 - Immuno-oncology dashboard in Power BI deploying a model of Overall Survival using Python

Data/Data Engineering

- 5+ years experience analyzing real world data in Healthcare and Financial Services including:
 - FDA Adverse Events Reporting & System (FAERS) – Comprehensive global repository of data sources collected over a 20+ year period.
 - Data collected includes: Patient demographics, MedRA coded adverse event reactions and indications for use, reporting sources, de/re challenge outcomes when treatment is stopped/reintroduced, treatment start/end dates
 - EMR, Patient claims; Pharmacy, medical and hospital claims; Physician/payer Rx (Xponent, PlanTrak), Aggregated SP/SD data.
 - Recent experience with real world data assets:
 - Patient claims (Symphony Health open claims, Truven MarketScan closed claims), Physician/payer Rx (Xponent, PlanTrak), Aggregated SP/SD data,.
 - Market access datasets: Longitudinal Access & Adjudication Data, PlanTrak, Fingertip Formulary, Formulary Impact Analyzer, CMS part D formulary, pharmacy network and pricing, Value of patient copay cards and market access contracts

- Patient Reported Outcomes, conjoint preference data, patient chart pulls
- Consumer Financial Protection Bureau Consumer Complaint Database - Big data batch pipeline to create summary report of consumer complaints by date and type from a large csv file (1.5+ mil. rows) using Python standard libraries and Linux shell script https://github.com/briangriner/read_write_big_csv

Teaching

- **Learning Lab at Data Science & Learning Systems:** Created to develop and test ML/AI training materials through a series of 5 online workshops that introduced participants to ML/AI tools in the Python ecosystem: *Python language, Numpy, Pandas, Matplotlib, Scikit-learn and TensorFlow libraries.*
- Textbook used for workshop: **Geron A. Hands-On Machine Learning with Scikit-Learn, Keras & Tensorflow: Concepts, Tools and Techniques to Build Intelligent Systems. 2nd ed. Sebastopol (CA): O'Reilly; 2019** (click on [link](#) to see jupyter notebooks used in workshop)

EXPERIENCE

DATA SCIENCE & LEARNING SYSTEMS, LLC - Founder and CEO

June 2017 to present

- Create new business insights from multiple data sources using Econometric and statistical modeling, Statistical Learning, Machine Learning and Deep Learning models
- Integration of business and engineering data sources for analytics including: images, text, internet log files
- Professional experience includes projects in the life sciences, commercial pharmaceutical, financial services, technology, media and environmental non-profit sectors
- Teaching/mentoring ML and data science via hands on workshops, public classes (Princeton School of AI at Princeton Library) and participation in open-source projects (e.g., Open Source Technology Foundation)
- **Sample of projects:**
 - ***Stemline** - launch analytics for **Elacestrant**, new oral therapy for HR +/- HER2 - breast cancer*
 - ***MedRhythms next-generation neurotherapeutics** - medical device launch of novel music therapy device for post-stroke patients with residual gait impairment.*
 - ***Open Source Technology Foundation – HealthOne Project** – Create interactive online tools for healthcare professional using the FDA Adverse Event Reporting System (FAERS) data. https://github.com/briangriner/OSTF-FAERS/blob/main/faers_multilabel_outcome_ml_pipeline-dask-joblib_2_16_2021.ipynb*
 - ***American Statistical Association Biopharmaceutical Section Regulatory-Industry Workshop. PS40-Supervised Machine Learning to Identify Social Behavioral Health Care Risks for COVID-19—Related Mortality and Inform Targets for Treatment and Prevention***
 - ***Velocity, Acceleration, Jerk and Snap? Predicting Google Search Trends with Higher Order Derivatives of Motion (velocity, acceleration, jerk, snap)** using multivariate LSTMs, CNNs and MLPs.*
 - ***Project management prognostic risk scoring model** - Agile project management Azure web app to predict user and team risk of task set non-completion*
 - ***Online Dashboard for Immuno-Oncology Clinical Trial.** Created pipeline process for transforming clinically validated SDTM and ADaM SAS datasets into interactive web dashboard with plots and graphs defined in the Statistical Analysis Plan that include interactive Kaplan-Meier plots for OS, PFS, TTE and Waterfall charts to measure Tumor Response over time for individual patients in different Best Response categories*
 - ***Predicting Heterogeneous Risk Factors and Prognostic Symptom Clusters for Prevention and Management of Pre-Diabetes and Metabolic Syndrome** using Gradient Boosting, XGBoost Ensemble Learning and Partial Dependence Plots to identify key predictors*
 - ***Digital Display Ad Resource Allocation Model** to target top performing pharma publisher domains for prioritizing media spend using sparse SVD, k-nearest neighbors and random forest*
 - ***TextAnalyzer class in Python:** Performs sentiment analysis and text analytics of web pages, text files and strings. Accepts custom word lists for the definition of positive and negative sentiment used to calculate sentiment scores.*
 - ***Anomaly detection** in import/export shipments using statistical tests of homogeneity*

BAYER PHARMACEUTICALS - Consultant

December 2019 to mid-February 2020

- Supported Commercial Data Management team to organize and complete data documentation across Bayer's pharmaceutical product franchises, e.g., diabetes, CKD, Oncology, hematology, ...
- Data types included: administrative claims, specialty pharma/distributor, customer data master
- Created SQL queries/views to help data analysts extract information schema from Bayer's data warehouse for individual products to incorporate into the data documentation platform

ASSEMBLY - Director, Analytics

February 2018 to May 2018

- **Analytic support for large pharmaceutical account** for all currently marketed products
- **Online dashboards of KPIs for multichannel media campaigns** including: Impressions, Clicks, CTR, Digital conversion, Rx conversion, ROAS, Spend pacing by Display, Search, Mobile, TV, Social
- **Analysis of IQVIA ADIQ data** linking impressions to specific patients by disease category and type: New To Brand, Switch, Newly Diagnosed, Currently on client's product

- **Speaker Bureau Rx Impact Analysis** using event attendance history, speaker profile and attendee monthly Rx prescribing change
- **Outbound Telemarketing Campaign Effectiveness** using call center history and monthly physician Rx prescribing change
- **Physician Rx influencer predictive model score** using CMS physician to physician patient referral data
- **Rep-Approved Email Click-Through promotion-response model score** using weekly physician NRx, rep-physician personal promotions (details and samples), email campaign history and content
- **Diabetes Franchise Provider Access Analysis** using physician – provider associations and monthly physician Rx by brand

QUINTILES (now IQVIA) – Chief Methodologist, Advisory Services**November 2012 to April 2015**

- **Member of Commercial Advisory Services team** that included HEOR, IT, Clinical Sales and Consulting
- **Real World Data Patient-based line of therapy physician treatment choice model and market share simulator** based on integrated treatment pathway and duration of therapy model using the GE EMR data to predict product sales in local geographies and create propensity scores for health outcomes model
- **Patient journey simulator using Bayesian Network** built from pharmacy, hospital and medical claims data
- **R & D, Real World Data** comorbidity analysis across 10 therapeutic areas using EMR data
- **Provider evidence-based order set impact analysis** using EHR for an IDN both across facilities within a department and within a facility across departments; Survival modeling using patient claims data to measure medication adherence, Lifetime Value and identify predictors of adherence and value in oncology;
- **PRO** structural equation model to measure association between levels of patient engagement and outcomes in respiratory;
- **Access & Pricing:** Payer global value-based pricing models in oncology and infectious disease
- **Market Research linked experimental design and choice model** of payers, providers and hospital decision-makers to measure pricing vs market access trade-offs to support Go-No Go decision in pre-term labor market
- **Market Research and Physician Rx integrated Sales Force Effectiveness model** of sales and support service quality in the respiratory market. Model predicted incremental Rx share for an increase in perceived quality of the client's field reps and support services relative to competitors
- **Market Research Payer-based choice-model and price-market access simulator** for HIV, HCV, Oncology markets using hierarchical Bayes random effects model of physicians and payers

KANTAR HEALTH - Sr Methodologist, Advanced Methods

June 2010 to October 2012

BIOVID CORP - Exec Dir, Strategic Analytics

November 2007 to May 2010

STRATEGIC BUSINESS RESEARCH - VP, Strategic Consulting & Advanced Analytics - November 2005 to October 2

TARGETRX - Dir, Client Solutions and New Product Development - June 2002 to October 2005

EDUCATION

UNIVERSITY OF PITTSBURGH, GRADUATE SCHOOL PUBLIC & INTL. AFFAIRS - Pittsburgh, PA

PhD Public Policy Research Methods - *Doctoral Program Award* (Academic Excellence in Dissertation Research)**MPA Public Administration**

WEST CHESTER UNIVERSITY - West Chester, PA

BA Communications (Magna Cum Laude)

RUTGERS UNIVERSITY - New Brunswick, NJ

Certification: Oracle SQL and PL/SQL + Python Developer + Java Programmer (5 month program)

COURSERA

Certificate: Google Cloud Platform Big Data and Machine Learning Fundamentals<https://www.coursera.org/account/accomplishments/records/8XTLJMCD9RAG>

GOOGLE QWIKLABS



Google Cloud Essentials Quest



Google Cloud Foundational Data, ML and AI Quest

https://google.qwiklabs.com/public_profiles/4fe14e18-78a7-40e5-9a06-3d9262c860b3**AWARDS**

- IPSOS NEW PRODUCT INNOVATION AWARD - 2001 Florence, Italy for customer satisfaction (CS) management system for inbound call center for automated reporting and manager email alerts for dissatisfied, high-value customers.

SAMPLE OF POSTS, PRESENTATIONS, POSTERS & PUBLICATIONS

- *American Statistical Association Biopharmaceutical Section Regulatory-Industry Workshop. [PS40-Supervised Machine Learning to Identify Social Behavioral Health Care Risks for COVID-19—Related Mortality and Inform Targets for Treatment and Prevention](#)*
- *2018 Future Pharma Commercial Data Insights Conference: [Practical Applications for Building A Commercial Center of Excellence: Digital Analytics Case Study](#)*
- *ICAAC/ICC 2015 – 55th Interscience Conference on Antimicrobial Agents and Chemotherapy: [Inconsistency in Defining Profound and Prolonged Neutropenia for Antifungal Prophylaxis Decisions](#). A. H. Sung¹, T. Rhodes¹, J. Arduino¹, S. W. Marcellai¹, R. Stolper², M. Meyer², D. Kombe², B. Griner²; IMerck & Co., Inc., Kenilworth, NJ, 2Quintiles, Durham, NC*
- *June 2014 Life Science Leader: [Navigating the New World of Value-Based Healthcare](#)*