

BRIAN MUIR, PH.D.

Overview

Highly-curious team-leader with 11-years of experience employing machine learning and statistics in the healthcare industry (5-years) and in the field of population genetics (6-years). Direct the forecasting of \$10B+ in annual pharmacy and medical claim expenses using advanced regression, time series models, and domain knowledge. Possess extensive experience with data extraction, wrangling, analytics and reporting in R/SQL executed across diverse project areas.

EDUCATION

2010
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2016

University of California Riverside

Ph.D. in Evolution, Ecology & Organismal Biology

📍 Riverside, CA

Dissertation: Peto's Paradox and the Evolution of Cancer Suppression: Lessons From Flies, Humans, and Elephants

2010

Boston College

B.S. in Biology, Psychology (Double Major)

📍 Chestnut Hill, MA

PROFESSIONAL EXPERIENCE

Jul, 2018
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Present

Director - Marketplace Forecasting

Centene Corporation / *Actuarial Services*

📍 Chicago, IL

-Direct the development, implementation, and presentation of the financial forecast for \$10B+ in annual medical and pharmacy claim expenses across 26 state products using mixed-models regression.

-Lead a team of six actuaries and data analysts working on a wide range of analytics projects encompassing interactive claims dashboards using Rshiny and RMarkdown, advanced forecasting methods, SQL database creation and maintenance, and ad-hoc deep dive analyses for multiple business partners across Actuarial, Finance, Sales, Product, Policy, Medical Management, Pharmacy, and Marketing.

-Present findings to leadership on member-segmented variances to forecast, financial impacts of COVID cost and deferral of services, and deep-dives into claims trends during monthly CFO financial briefings.

-Developed a member-level gross margin database detailing revenue and expense components across 40 targetable member characteristics that integrates disparate data sources using SQL/R. Deployed overlaying drill-down dashboard in RStudio used widely across departments to identify risks and opportunities for member-segmented business actions.

-Identified an \$8M annual initiative to improve on risk adjustment code capture of Hemophilia that we continue to support with outreach targets via an in-production Shiny Dashboard.

-Created stratified med-management model based on interacting the two dimensions of utilization and health status to highlight top conditions, disease management status/acceptance, risk score, risk adjustment code capture opportunity, claim costs and demographics by segment to identify optimal cohorts for med management programs.

CONTACT INFO



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For more information,
please contact me via
email.

SKILLS

Experienced in statistical analysis, predictive modeling, healthcare analytics, financial forecasting and budgeting.

Highly skilled in R (RShiny, RMarkdown, dplyr, ggplot, tidymodels, etc.)

Git / Gitlab, SQL, Excel, Tableau, PowerBI

Experimental design, GLMs, time series, regression and classification

*This resume was made with the R package **pagedown**.*

Last updated on 2022-06-26.

Sep 2016
|
Jul 2018

Data Scientist I

Centene Corporation / *Actuarial Services*

📍 Chicago, IL

- Built and implemented a novel claims completion model using regression to estimate incurred but not reported expenses prior to month end; an advance over traditional methods to accelerate preparation of financial reporting and commentary.
- Developed a claims outlier detection model by Episode Treatment Group to direct investigations into abnormal claim areas each month.
- Designed primary care auto-assignment algorithm to optimally assign members to high-quality, low-cost providers.
- Devised Rx Trends and Top Conditions interactive RMarkdown dashboards to highlight emerging trends in Rx utilization; present findings monthly during Rx Governance Committee meetings.



RESEARCH EXPERIENCE

2010
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2016

Graduate Research Assistant

University of California Riverside

📍 Riverside, CA

- Analyzed large gene expression datasets with R (Bioconductor) using non-parametric statistical models.
- Performed statistical tests of codon evolution in cancer gene-sequence alignments using maximum likelihood models.
- Designed and directed multi-year longitudinal experimental evolution study on fruit flies overseeing 2 – 6 undergraduate volunteer research assistants per quarter. Employed advanced experimental design statistics.
- Taught 18 quarters of upper and lower division biology courses with up to 150 students per week. Mentored 2 – 6 undergraduate volunteer research assistants per quarter.



PUBLICATIONS AND PRESENTATIONS

2015

The expression of tumour suppressors and proto-oncogenes in tissues susceptible to their hereditary cancers.

British journal of cancer, 113(2), 345-353.

Muir, B. & Nunney, L.

2015

Peto's paradox and the hallmarks of cancer: constructing an evolutionary framework for understanding the incidence of cancer.

Phil. Trans. R. Soc. B, 370(1673), 20150161.

Nunney, L. & Muir, B.

2015

International Biannual Evolution and Cancer Conference

Lightning Talk and Poster

2014

Evolution Conference

Talk



ACTUARIAL EXAMS

2019

PA - Predictive Analytics

2019

SRM - Statistics for Risk Modeling

2018

P - Probability