DENIS OSTROUSHKO

EDUCATION

2024 | 2022

University of Minnesota School of Public Health

MS Biostatistics

Minneapolis, MN

2019 | 2015

University of Minnesota - Morris

BA Mathematics, Statistics *(Double Major)*

Morris, MN

RESEARCH EXPERIENCE

May 2024 | August 2023

Graduate Research Assistant

University of Minnesota, Division of Biostatistics

Minneapolis, MN

Master's Thesis

- Conducted an observational study aimed at optimizing the definition of Mild Cognitive Impairment (MCI) and Alzheimer's Disease (AD) diagnoses using Fairview Electronic Health Records Data.
- Conducted literature review and data exploration to develop precise definitions based on established inclusion/exclusion criteria and insights from data observations.
- Proposed a sample optimized for inferential study purposes, laid the groundwork to study association between non-pharmaceutical interventions and MCI-to-AD progression

Data Integration Predictive Methods for AD Identification

- Implemented regression and machine learning methods to develop a pipeline identifying variables most associated with AD presence from multiple -omics data sets.
- Used SIDA, a novel data-integration method, for multi-view feature selection & inference in Alzheimer's biomarker detection.
- Showed that use of multiple -omics data sets improves AUC by 10-20% when compared with individual view approaches.

INDUSTRY EXPERIENCE

August 2023 | June 2021

Medica

Healthcare Analyst II

Minneapolis, MN

- Led a study to assess a member assistance program. Developed a Cox model to understand average treatment effect. Showed that $1,000,000 annualized savings was a statistically significant figure. Used subgroup analysis to propose further improvement steps.
- Contributed to improvement of risk predictions for hospital readmission. Constructed data from claims in enrollment using SAS. Developed LASSO logistic regression and random forest models in R. Contributed to an improved model, increasing accuracy and AUC by 17% over previous production model.
- Designed a difference-in-differences study with propensity score matching for causal analysis of treatment intervention. Used bootstrap methods to get variance of estimators. Performed sample size and power calculations to suggest next steps for program improvement.

CONTACT INFO

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LinkedIn Profile

denisostroushko1.github.io

github.com/denisostroushko1

TECHNICAL SKILLS

- R/Rstudio
- SAS/SQL
- Git
- Python
- AWS S3

ANALYTICAL SKILLS

Frequentist and Bayesian Statistics

Predictive and Inferential Modeling

Correlated and Survival Outcomes

Observational Data Causal Inference

Study Design, Cohort Construction

Simulation Studies

DATA SCIENCE SKILLS

Static Reports, Interactive ShinyApps

`ggplot` and `plotly` Visualizations

Pipelines from Source Data to Final Products

Big EHR, Claims, Insurance Data Processing

Strong RX, CPT, Diagnosis Codes Understanding

Document powered by `pagedown`
Source code in Git

Last updated on 05/07/2024

June 2023 | June 2019

Medica

Statistical Healthcare Analyst I (2019-2021)

Minneapolis, MN

- Automated actuarial completion factors model using SAS/SQL. Improved estimation granularity, reduced prediction error by 35%. Reduced delivery time for the final product from several business days to three hours.
- Consulted internal teams on ad-hoc analyses, inclusion/exclusion criteria, and inference from small samples of data to promote further pursuit of initiatives.
- Developed analysis ready data sets from claims and enrollment data, distributed data sets to collaborators. Extracted analysis features from ICD, CPT, DRG, RX codes. Automated text processing using SAS and R software to extract additional information.
- Led the introduction of benchmarks from Milliman proprietary software. Improved identification of cost savings opportunities and increased strategy transparency.
- Routinely performed medical cost and utilization trend analysis. Contributed to high-level business oriented presentations with insightful summary statements, origins of observations, and data visualizations created in R using ggplot.

PERSONAL PROJECTS

Present | April 2023

Interactive Analysis of Soccer Data

- Continuously working on my interactive app to summarize player-level match data from FBRef.com. Automated daily data update using github actions and storage of data in AWS S3.
- Developed interactive UI using `ShinyApp` functionality in R.
- Created summary reports using aggregated statistics, ranked data, and interactive `plotly` data visualization.
- Used high-dimensional aggregate season-level data to study player similarity. Adapted and developed multiple versions of similarity metrics based on euclidean and weighted distance between data points in high dimensional space.
- Working on Bayesian hierarchical level models to study distributions of observed player statistics. Aiming to use these studies to develop detailed scouting reports.

Present | April 2021

Interactive Analysis of Financial Markets

- Developed a dashboard to summarize and visualize time-series financial data from cryptocurrency markers.
- Developed interactive UI using `ShinyApp` functionality in R. Automated data update using github actions, api tools, and AWS S3 data storage. Code for the app is not public yet.
- Implemented analysis of moving averages, RSI, volatility patterns, and other common financial market analysis tools to gauge insights from historical data.
- Developed a version of a risk detection model for each asset type. Risk model summarizes current market data and volatility patterns to identify periods of severe over- and under-valuations of cryptocurrency assets.