Matthew Poland MSPAS, PA-C

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Education
Seton Hall University - Bachelor of Science in Business Administration (Finance/Marketing)
Seton Hall University - Master of Science in Physician Assistant Studies

Licenses/Certifications
NCCPA/NJ PA License, DEA/NJ CDS, BLS/ACLS/ATLS/ENLS
Data Scientist with Python from Datacamp
Python for Data Science and Machine Learning Bootcamp from Pierian Training
Machine Learning, Data Science and Generative AI with Python from Udemy
Math for Data Science Masterclass from Pierian Training
The Complete SQL Bootcamp from Pierian Training

Experience
Critical Care Physician Assistant, Hackensack Meridian Health (HUMC Campus) — 2015 to present

- Focus on trauma, surgical critical care including surgical oncology, and neuro-critical care in the ICU setting
- In-depth understanding of the scientific and epidemiological domain of many critical care pathologies
- Organize and dynamically prioritize hundreds of daily objectives with patient care at the forefront while addressing the needs of consultant treatment plans, families, nursing care, and disposition plans
- Comfortable presenting the entirety of a patient's health picture to all audiences
- Highly experienced with electronic health records (Epic)
- Embrace an autonomous work environment when needed (depending on shift, make upwards of 90-100% of patient-care decisions)
- Maintain in-depth understanding of medical journals, clinical research developments, and scientific trends in order to practice evidence-based medicine
- Identify potential interventions and trends with high disruptive potential in assigned clinical areas
- Contribute to the writing, review and refinement of hospital network policies for trauma patient management (several examples - pelvic fracture management, emergent thoracotomy, and diversion protocol)
- Execute literature reviews to write guidelines and protocols (several examples where I was lead author - "Venous Thromboembolism Prophylaxis for All Types of Trauma Patients," "Tracheal Decannulation Guidelines," and "Antibiotics for the Trauma Bay")
- Active role in HUMC's Trauma Quality Program developing exploratory data analysis and then implementing ACS/NTDB/TQIP standards and improvements to validate Level 1 Trauma Center designation
- Record and extract reportable data into and from our Trauma Registry in accordance with HIPAA
- Track and research quality measures post policy interventions (initiatives include - timestamp of Trauma to Neurosurgery communication, time from trauma bay to operating room, time to the first family meeting for critical care patients, time to tertiary assessment for trauma patients, and time to deep vein prophylaxis for trauma patients)
- Comfortable participating in or managing a complex care team
- Supervise and train Residents/APPs/Students
- Lead voice in palliative/prognosis meetings
- Dedicated Stroke Committee APP Liaison
- Awarded 2022 PA of the Year

Tool Knowledge
Data Science Libraries - NumPy, pandas, matplotlib, seaborn
SQL - PostgreSQL, pgAdmin
BI Tools - Tableau, Excel
Coding - Python
Statistics and Machine Learning Tools - sci-kit learn, SciPy, Keras, Tensorflow, PyTorch
IDEs and Repository Hosting Service - Google Colab, Jupyter, GitHub

Skills

- Soft business skills (communication, critical thinking, being proactive, multi-tasking, empathy, self-awareness)
- Ability to dissect academic literature and make conclusions on results and methods
- Navigating Python documentation sites to disentangle peer's code along with building and testing original software
- Within Python, working knowledge of different data types, arrays, lists, dictionaries, functions, methods, arguments, slicing, comparison operators, boolean operators, for/while loops, if/elif/else statements, building DataFrames, indexing (loc and iloc), subsetting (filtering), exploratory data analysis and data mining, preprocessing (cleaning, manipulating, and imputing) missing data, dummy variables, one-hot encoding, grouping, joining (left, right, inner, outer, self, anti, semi), merging (on self, on indexes, multiple DataFrames), concatenating, querying, melting, pivot tables, plotting and visualizing
- Growing statistical knowledge of central tendencies, variance, standard deviation, central limit theorem, sampling, bootstrapping, hypothesis testing, A/B testing, z-scores, p-values, confidence intervals, type I errors, type II errors, t-tests, ANOVA tests, chi-squared tests, classification, regression, scaling, normalizing, supervised and unsupervised learning workflows, k-Nearest Neighbors, overfitting/underfitting, R-squared, Lasso and Ridge regression, cross-validation, hyperparameter tuning, ROC, KMeans, principal component analysis (PCA), non-negative matrix factorization (NMF), decision trees (CARTs), generalization error, bias-variance tradeoff, ensemble learning, bagging, random forests, AdaBoost, gradient boosting, time series
- Systematic note-taker (frameworks in place for the majority of my Python, statistical methods, and machine learning skills)

Projects

Completed hundreds of data science exercises and projects - a large part can be seen on my GitHub Gist page

Most recent projects can be viewed on my GitHub page

-Dementia Prediction-

https://github.com/mattpolands/Dementia-Prediction/blob/main/DementiaPrediction.ipynb

-Global Burden of Disease-

https://github.com/mattpolands/GlobalBurdenDisease/blob/main/GlobalBurdenofDisease.ipynb