Brendan Lauterborn

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EDUCATION

Towson University - Towson, MD — August 2024 - Present
M.S. Computer Science — GPA: 4.0

Texas A&M University - College Station, TX — August 2017 - May 2021
B.S. Applied Mathematics — GPA: 3.1

PROFESSIONAL EXPERIENCE

Business Intelligence Developer Intern, *CPower Energy* - Baltimore, MD — June 2025 - August 2025

- Helped to migrate Dispatch Contact data from a legacy database to Microsoft Dynamics.
- Designed and implemented a Python-based data validation system for Microsoft Dynamics 365 leads, categorizing records into Good, Gray and Bad using custom rules. Integrated the results into Power Query and Power BI to deliver a live dashboard for sales lead quality monitoring.
- Built a Python solution for detecting duplicate account records in Microsoft Dataverse using fuzzy matching techniques to imporve data integrity and support data cleanup.
- Designed a Python solution to detect duplicate SharePoint document locations in Microsoft Dataverse, linking the results to associated accounts and users, prioritizng national customers, and exporting findings to excel for data cleanup.

PROJECTS

Data Mining - Diabetes Classification (Python)

- Performed exploratory data analysis (EDA) to identify relationships between demographic and medical factors such as age, BMI, HbA1c level, and blood glucose level in predicting diabetes.
- Applied data preprocessing techniques including one-hot encoding of categorical variables and z-score standardization of numerical features.
- Trained and compared multiple classification models including Logistic Regression, Gaussian Naïve Bayes, and Artificial Neural Network (ANN), evaluating performance using accuracy, precision, recall, and F1-score.
- Optimized the ANN using early stopping and L2 regularization to prevent overfitting, and tested multiple classification thresholds to achieve the best balance between sensitivity and specificity.

Data Mining - Traffic Volume Prediction using Regression (R)

- Performed EDA and data preprocessing including normalization of numerical attributes using min-max, z-score, and decimal scaling methods; discretized a continuous variable using multiple binning techniques; and applied log, square root, and inverse transformations to achieve normality for a non-normally distributed variable.
- Trained and tested multiple regression models including Linear Regression, Decision Tree, Random Forest, and Gradient Boosting, and compared their performance using R^2 and RMSE metrics.

Big Data - Netflix Churn Classification (R)

- Performed EDA to identify patterns and correlations between user engagement metrics, subscription tenure, and churn behavior, and applied data preprocessing techniques including encoding categorical variables and scaling numerical features.
- Trained and tested multiple models including Logistic Regression, SVM, and random forest, and compared their results using accuracy, F1, and ROC.

Big Data - MovieLens Recommender System (Python)

- Implemented a baseline User-User Collaborative Filtering model using cosine similarity and a Matrix Factorization model with Alternating Least Squares (ALS) for improved performance.
- Evaluated both models using precision@k, recall@k, MAP, and NDCG metrics, demonstrating that the ALS model achieved higher accuracy by capturing latent user–item features.

AI Labs - Grid Maze Pathfinding, Wumpus World, and 20-Questions (Python)

- Developed an intelligent agent for grid-maze navigation using A*, BFS, and DFS algorithms.
- Implemented the Wumpus World problem to simulate reasoning under uncertainty using logic-based inference.
- Built a 20 Questions–style learning system to predict video game titles using a feature-based similarity and information-gain heuristic; implemented dynamic question selection that prioritized high-variance, well-balanced features and applied pruning to eliminate redundant or low-value questions, allowing user responses on a continuous confidence scale from −1 to 1 instead of binary inputs.

Academic Papers: View Papers

TECHNOLOGY SKILLS

Languages: Python, R, SQL, Java, C++
Libraries and Framework: pandas, NumPy, scikit-learn, Matplotlib, Seaborn, GGplot2
Data Tools: MySQL, Power BI, Excel, Jupyter Notebook, RStudio, Google Colab, Postman, Git, Overleaf