Brendan Premo

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Linkedin Profile | GitHub Portfolio

EDUCATION

University at Albany — Albany, NY
Master of Science in Data Science — *Fall 2023 – Spring 2025*
Master of Arts in Mathematics — *Fall 2022 – Fall 2024*

Rensselaer Polytechnic Institute (RPI) — Troy, NY
Bachelor of Science in Applied Mathematics — *Fall 2016 – Fall 2020*

TECHNICAL SKILLS

- **Languages:** Python, SQL, R, Java, LaTeX
- **Libraries & Tools:** PyTorch, Scikit-Learn, Pandas, GitHub, AutoGluon
- **Machine Learning:** Convolutional Neural Networks (CNN), Gradient Descent, Transfer Learning, Random Forest, Feature Engineering, Alternating Least Squares (ALS)
- **Mathematics:** Topological Data Analysis (TDA), Markov Chains, Monte Carlo Simulations, Time Series Regression, Principal Component Analysis (PCA), k-Rank SVD

PROFESSIONAL EXPERIENCE

Soria Research — *Data Analyst*
June 2025 – Present

- Spearheaded the visual architecture of the product, personally designing or refining over 75% of all client-facing analytical materials, specifically within the Healthcare sector.
- Orchestrated end-to-end data pipelines, managing data acquisition, cleaning, and complex analysis for future use in the product.
- On-boarded and trained new analysts on internal systems and data best practices.

K&R Premo Enterprises — *Farm Hand*
Oct 2019 – June 2025

- Managed daily operations for a family business, ensuring the welfare of livestock and efficient processing of materials in a high-labor environment.

Adirondack Hotel — *Bartender*
May 2020 – March 2021 — Long Lake, NY

- Provided high-volume service in a fast-paced environment, including managing bar operations for large-scale onsite events.

KEY TECHNICAL PROJECTS

Biomechanics Topological Data Analysis (Data Science Thesis) — *Spring 2025*

- Analyzed movement patterns in sports video data to distinguish between optimal and suboptimal form.
- Transformed dynamic video into grayscale pixel data to perform Persistent Homology using Python, successfully mapping movement topology.
- Delivered a professional technical report and presentation summarizing complex topological findings for stakeholders.

Riemann Spectrum & Analytic Continuation (Mathematics Thesis) — *Spring 2024*

- Conducted extensive research on the history and formulations of the Riemann Hypothesis, focusing on analytic continuation.
- Developed and delivered a four-part lecture series to graduate students and professors, synthesizing complex theoretical mathematics into accessible presentations.

Machine Learning Projects: Predictive Modeling & Systems — *Spring 2025*

- **Housing Price Prediction:** Engineered a predictive model achieving a Root Mean Square Error (RMSE) of .07 by utilizing AutoGluon's Tabular Predictor; performed extensive data cleaning and feature engineering.
- **Recommendation System:** Developed a movie/music recommendation engine from scratch, implementing Alternating Least Squares (ALS), Stochastic Gradient Descent (SGD), and Projected Gradient algorithms without relying on pre-built libraries.
- **Image Classification (CNN):** Achieved 85% classification accuracy on the CIFAR-10 dataset by implementing Convolutional Neural Networks; utilized transfer learning with AlexNet to demonstrate incremental network improvements.
- **Time Series Regression:** Conducted analysis on environmental factors, identifying a correlation where higher temperatures and lower precipitation serve as markers for higher Air Quality Index (AQI) levels.