

# James Shannon

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<https://shannoj.github.io/Website/>

## Skills

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**Programming:** Python (pandas, numpy, scikit-learn, XGBoost, scipy, statsmodels), R, SQL, Java, Git

**Tools & Platforms:** Streamlit, Jupyter, Linux, Excel, Tableau

**ML/Statistics:** Time series, regression models, gradient boosting, hypothesis testing, Bayesian Statistics

**Mathematics:** Linear algebra, numerical analysis, optimization, probability theory, statistical modeling

## Education

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**University of Washington**, MS in Applied and Computational Mathematics

Sept 2025 – Dec 2026

- Relevant Courses CSE 546 Machine Learning, STAT 509 Mathematical Statistics

**Western Washington University**, BS in Mathematics, Minor in Chemistry

Sept 2018 – June 2021

## Projects

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**NFL Player Performance Prediction System** | Python, XGBoost, Pandas, SQL

- Engineered predictive model with R<sup>2</sup> of 0.602 for quarterback passing yards
- Implemented bootstrap confidence intervals to quantify prediction uncertainty and model reliability
- Built pipeline integrating multiple data sources (nflreadpy, weather APIs) with pandas for weekly predictions

**US Electricity Generation Forecasting** | Python, Streamlit, Time Series Analysis

- Built interactive time series forecasting dashboard analyzing 20+ years of EIA electricity generation data
- Implemented Fourier decomposition (R<sup>2</sup>=0.91), autoregressive lag models (R<sup>2</sup>=0.94 deseasonalized), and seasonal trend analysis to analyze EIA data
- Created production dashboard with Streamlit enabling real-time exploration of 7 energy sources

## Experience

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**Intermediate Lab Technician**, Fred Hutch – Seattle, WA

Sept 2024 – Sept 2025

- Processed and analyzed laboratory specimens following SOPs and regulatory standards
- Conducted QA/QC testing to ensure data integrity and accuracy
- Collaborated with cross-functional teams to interpret clinical data results
- Maintained and monitored laboratory inventory supplies and requested new supplies when necessary

**EHS Specialist**, Fred Hutch – Seattle, WA

July 2021 – Sept 2022

- Managed large datasets tracking hazardous materials and improved process efficiency
- Conducted data-driven assessments to support safety audits and regulatory reporting
- Ensured safe disposal of hazardous waste in accordance with state and federal guidelines

**Statistical Research Assistant**, Western Washington University – Bellingham, WA

August 2020 – June 2021

- Analyzed structural changes in datasets using Cumulative Sum and Likelihood Ratio tests.
- Utilized R for statistical modeling, data analysis, and visualization.
- Authored an abstract comparing change point detection methods for statistical conferences.

**Research Data Analyst**, University of Washington – Seattle, WA

June 2019 – August 2019

- Extracted and analyzed medical record data to identify correlations and trends between different autoimmune disorders and chronic neutropenia
- Cleaned and organized large datasets using Excel for accurate reporting.