Alyssa Anastasi

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Education

University of Wisconsin-Madison Aug. 2025 – May 2027
Master of Science in Biomedical Data Science *3.85/4.00*
- Coursework: Foundation Models, Bioinformatics, Statistical Methods for Clinical Trials, Statistics in Human Genetics

University of Illinois Urbana-Champaign Aug. 2021 – May 2025
Bachelor of Science in Statistics and Computer Science, Minor in Public Health *3.87/4.00*

Experience

Graduate Research Assistant Sep. 2025 – Present
University of Wisconsin-Madison *Madison, WI*
- Leverage protein sequence data in ML models for viral host prediction to assess human spillover risk
- Automated ML training pipelines on HTCondor to enable high-throughput deep-learning experimentation
- Developed and deployed CNN models in TensorFlow and fine-tuned 18M+ parameter transformer protein language models
- Reduced end-to-end model training runtime from 48 hours to 1.5 hours by implementing GPU-accelerated workflows
- Designed Leave-One-Out and large-scale evaluation frameworks to benchmark transformer and CNN architectures

Research Assistant Jan. 2025 – Present
University of Illinois Urbana-Champaign *Champaign, IL*
- Modeled disease transmission using an age-stratified SIR framework implemented in R for COVID, Flu, & RSV
- Ran large-scale simulations to evaluate vaccination strategies and effects on infection and transmission dynamics
- Presented model insights to research team to guide development of analysis pipelines

Biomedical Data Science Research Intern May 2024 – Aug. 2024
University of Wisconsin-Madison *Madison, WI*
- Integrated multi-source data to apply graph neural networks to predict effects of gene perturbations on expression
- Executed PyTorch Geometric GNN explanation methods to evaluate NN validity
- Quantified feature importance to evaluate graph node features' influence on predictions compared to graph structure
- Identified stability issues in PyTorch Geometric explainability methods and provided actionable insights to greater team

Quality Analyst Intern May 2023 – Aug. 2023
AbbVie *Waukegan, IL*
- Executed UAT for a new TIBCO Spotfire analytics platform, validating 10+ dashboards for clinical quality workflows
- Built monthly statistical analysis pipelines in Minitab to evaluate drug stability for multiple new drug products
- Performed statistical analysis of quality data for 12 products using Excel and Minitab
- Achieved a 67% improvement in personal efficiency between first and second quality reports

STAT/CS 107 Course Assistant Aug. 2022 – May 2025
University of Illinois Urbana-Champaign *Champaign, IL*
- Recipient of the Spring 2024 Outstanding Computer Science Course Assistant Award
- Assisted lab sections and office hours on data science topics including probability, python, and pandas
- Enhanced team productivity by streamlining homework review workflow through GitHub request management

Projects

Multi-omics for Clinical Outcome Prediction | *Python, Snakemake* 2025
- Integrated multimodal leukemia datasets using MOFA to learn latent patient representations
- Predicted patient mortality using supervised models trained on MOFA factors
- Tuned latent dimensionality via cross-validation and evaluated performance using ROC-AUC

Daily Fashion | *Python, Flask, React, MySQL* 2024
- Designed and implemented normalized SQL database schema
- Built a RESTful backend API using Flask and integrated it with a React frontend for end-to-end application functionality
- Implemented a data-driven recommendation pipeline to generate personalized clothing suggestions based on user preferences

Skills

Languages: Python, SQL, R, C/C++, HTML/CSS, JavaScript, Java
Frameworks: React, Node.js, Flask
Python Libraries: PyTorch, TensorFlow, scikit-learn, pandas, NLTK, NumPy, Matplotlib, Seaborn
Tools: Docker, Git, Google Cloud Platform, HTCondor, Jupyter, Tableau