Andi Mellyn

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B.S. Data Science & Mathematics — Colorado State University (Expected 2026)

Red Feather Lakes, CO
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Profile

Analytical and highly organized professional with a background in anatomical laboratory management, quality assurance, and technical documentation. Leveraging expertise in process optimization and data integrity in a regulated environment to expand into data science, focusing on statistical modeling, visualization, and evidence-based decision making. Experienced in leading teams, developing structured systems, and maintaining rigorous quality-control standards.

Skills Summary

Technical: Python (numpy, pandas, matplotlib), R (tidyverse, tidymodels), Jupyter, Quarto, RMarkdown, MATLAB, Java, LaTeX, Git/GitHub

Data Science: Data Cleaning and Validation, Data Exploration, Visualization, Statistical Modeling, Model Evaluation Metrics

Math/Algorithms: Applied Linear Algebra, Optimization Algorithms (Newton, BFGS), Simulation and Monte Carlo methods

Soft Skills: Analytical Thinking, Technical Writing, Training, Cross-Functional Communication, Attention to Detail

Education

Colorado State University — Fort Collins, CO
B.S. in Data Science & Math, Minors in Statistics and Machine Learning — *2021–expected May 2026*

Selected Coursework

Core Data Science: Data Wrangling, Inferential Reasoning in Data Analysis, Optimization Methods in Data Science, Statistical Computing

Machine Learning & Modeling: Statistical Machine Learning in R, Machine Learning in Python, Intro to Algorithms

Mathematics & Theory: Linear Algebra for Data Science, Advanced Calculus, Real Analysis, Combinatorial Theory, Probability and Mathematical Statistics, Number Theory, Mathematics of Information Security

Programming & Systems: Data Structures, Software Development, Ethical Computing Systems

Statistics & Visualization: Statistical Data Analysis I & II, ANOVA, Data Graphics and Visualization

Professional Experience

Owner & Operator — Honor a Life Opportunity — Denver, CO
Whole-Body Donation Laboratory — *2018–2021*

- **Operations Management**: Established and managed a full-service whole-body donation facility adhering to all OSHA and accreditation standards.
- **Quality Systems**: Developed document control and quality assurance procedures to ensure traceability and compliance.
- **Training & Outreach**: Created training materials and delivered presentations to clients, families, and partner organizations.
- **Consulting**: Advised new donation companies on regulatory compliance, tissue recovery processes, and accreditation preparation.

Lab Manager — Lonetree Medical Donation — Littleton, CO
Whole-Body Donation Laboratory — *2015–2018*

- **Quality Control**: Designed and implemented a company-wide quality system from the ground up.
- **Data Systems**: Built and maintained a digital record database, migrating legacy systems to a paperless workflow.
- **Compliance**: Authored lab SOPs and documentation for accreditation.
- **Leadership**: Trained staff on procedures, laboratory safety, and donor suitability screening.

Lab & Allocation Supervisor — GenLife Phoenix, AZ / Norman, OK
Anatomical Laboratory Operations *2010–2013*

- **Process Improvement**: Streamlined tissue allocation workflows, improving order accuracy and turnaround time.
- **Database Management**: Maintained multi-state tissue inventory system exceeding $1M in assets.
- **Documentation**: Authored laboratory procedures, training manuals, and compliance records.
- **Team Leadership**: Recruited and trained lab staff while coordinating between technical teams and management.

Academic Projects and Presentations

Ultramarathon Data Analysis Python Project — 2025
Exploratory Data Analysis in Python

- **Exploratory Analysis**: Performed exploratory data analysis on 100+ years of ultramarathon race data to examine endurance and age-related performance trends.
- **Visualization**: Cleaned, summarized, and visualized endurance performance data using Python (Pandas, Matplotlib, Seaborn).

Exercise and Neurogenesis Neuroscience Research Poster — 2025
Independent Research Project

- **Scientific Research**: Explored how physical exercise enhances brain plasticity and memory through underlying neural mechanisms.
- **Visualization**: Created custom plots and figures illustrating exercise-induced growth factors on cognitive function and neurogenesis rates.

The Hessian in Biomechanics Mathematics Poster Presentation — 2025
Advanced Calculus for Computational Science

- **Mathematical Modeling**: Demonstrated how second-order derivatives (Hessian matrices) reveal curvature and stability in biomechanical systems.
- **Scientific Communication**: Linked mathematical optimization to human gait and robotic movement through visual models.

Health and Exercise Science Data Project Machine Learning Research Presentation — 2025
Statistical Machine Learning in R

- **Machine Learning Models**: Built regression and classification models to predict diet and exercise's impacts on heart disease.
- **Collaboration**: Team-based project emphasizing reproducibility, feature engineering, and interpretability.

Computational Statistics Project Statistical Research Presentation — 2025
Monte Carlo Simulation and Statistical Computing in R

- **Simulation-Based Model Comparison**: Used large-scale Monte Carlo simulations to compare statistical models under varying sampling conditions.
- **Sampling Variability**: Analyzed sampling variability, model stability, and feature importance to evaluate predictor performance in binary clinical style data settings.

Optimization and Mathematical Modeling Mathematics Poster Presentation — 2025
Optimization Methods in Python

- **Algorithmic Comparison**: Compared gradient descent, Adam, conjugate gradient, Newton, and BFGS across logistic and ridge regression models using a large-scale health dataset.
- **Convergence Analysis**: Analyzed convergence behavior, iteration counts, runtime, and stability of optimization methods, focusing on algorithmic performance.

Additional Information

Long-distance runner with a passion for using data science and mathematical modeling to study human performance and health. Enjoys cross-disciplinary work that connects statistics, optimization, and real-world biomedical data.