Adrian Bishop

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SUMMARY

Early-career **Machine Learning Engineer** with a 2026 B.S. in Computer Science and practical experience building reproducible models, preprocessing workflows, feature-generation systems, and monitored prototypes. Python, pandas, **scikit-learn**, PyTorch, TensorFlow, Git, pytest, modular code, and **model evaluation** support reliable delivery from raw data through validated predictions. Academic research and capstone work covered Airflow scheduling, Docker packaging, CI/CD checks, cloud experimentation, experiment documentation, and production-style deployment. Clear success metrics helped align faculty, classmates, and simulated operations stakeholders around useful outcomes. Eager to join **Northstar Vector Labs**, contribute thoughtfully with engineering partners, and turn sound ML methods into dependable systems that serve real users.

EDUCATION

B.S. in Computer Science 2026

Northwestern University GPA: 3.8 *Evanston, IL*

Coursework: *Python, machine learning, data structures, software engineering, statistics, cloud computing*

TECHNICAL SKILLS

- **Programming Languages:** Python, SQL, Bash
- **Data Processing:** pandas, NumPy, data validation
- **Machine Learning:** scikit-learn, regression, classification
- **Deep Learning:** PyTorch, TensorFlow, neural networks
- **Workflow Orchestration:** Airflow, DAGs, scheduled tasks
- **Version Control:** Git, GitHub, branching
- **Testing Tools:** pytest, unit testing, linting
- **Containerization:** Docker, Dockerfiles, container builds
- **Cloud Services:** AWS, object storage, cloud sandbox
- **Model Evaluation:** cross-validation, precision, recall
- **Deployment Practices:** CI/CD, batch inference, model serving
- **ML Operations:** model monitoring, retraining, experiment tracking

SKILLS

- Python
- pandas
- scikit-learn
- PyTorch
- TensorFlow
- Airflow
- Git
- pytest
- Modular code
- CI/CD
- Docker
- Cloud services
- Data preprocessing
- Feature engineering
- Model evaluation

EXPERIENCE

Machine Learning Engineering Project Lead

September 2024 - December 2024

Northwestern University Machine Learning Project *Evanston, IL*

Led a faculty-sponsored ML project from public transit data ingestion through reproducible evaluation, guiding modular development, stakeholder decisions, and presentation delivery. Work connected model quality with operational choices around delay alerts and continued monitoring research.

- Built **scikit-learn** pipeline modules for 42,000 transit records, improving reproducible model development.
- Resolved missing timestamps through **pandas** profiling, creating interpretable time-based route features.
- Compared logistic regression, random forest, and gradient boosting with stratified cross-validation metrics.
- Added **Git** version control and pytest checks, allowing classmates to reproduce experiments consistently.
- Defined delay-alert thresholds with faculty sponsors, balancing false alerts against missed delays.
- Presented evaluation findings to 20 reviewers, earning approval for continued monitoring research.

Machine Learning Research Assistant

January 2025 - August 2025

University Research Lab *Evanston, IL*

Supported microscopy research through PyTorch workflows, scheduled preprocessing, containerized training, cloud artifact storage, and clear experiment records. Contributions helped faculty and graduate researchers repeat runs, inspect errors, and discuss practical model limits.

- Developed **PyTorch** image classification workflow for 18,000 microscopy images, supporting repeatable research runs.
- Scheduled preprocessing and feature tasks with **Airflow**, recording inputs and parameter settings.
- Reviewed held-out validation and learning curves, identifying overfitting across image classes.

- Containerized training dependencies with **Docker**, reducing setup differences across four lab workstations.
- Stored experiment artifacts in cloud object storage, preserving data versions and hyperparameters.
- Coauthored research presentation translating model limits into practical testing recommendations for faculty.

Machine Learning Engineer Capstone Student

September 2025 - May 2026

Northwestern University Capstone Project

Evanston, IL

Designed a production-style demand forecasting service for simulated retail operations, connecting pandas preparation, scikit-learn training, Docker deployment, **CI/CD** validation, and **model monitoring**. Coordinated success measures with an operations stakeholder and documented decisions for dependable use.

- Designed demand forecasting service with **pandas** preparation and tested **scikit-learn** training components.
- Created feature modules for promotions, seasonality, inventory history, and product groups.
- Validated schemas, nulls, and leakage risks before training models across product categories.
- Packaged batch prediction service with Docker, documenting deployment steps for a cloud sandbox.
- Added Git-based CI checks for tests, linting, schemas, and container builds.
- Set mean absolute error targets with operations **stakeholders**, guiding monitoring and retraining decisions.

PROJECTS

Cloud Model Monitoring Sandbox May 2026

Created a separate cloud sandbox for batch prediction monitoring, artifact review, alert logic, and retraining notes. Project connected deployment records with practical model-performance checks.

Airflow Feature Pipeline Study August 2025

Built a scheduled Airflow study pipeline for dataset checks, feature generation, parameter capture, and experiment records. Work focused on repeatable runs and clear handoffs.

LEADERSHIP & AWARDS

- Dean's List, Northwestern University, 2024 - 2026
- Undergraduate Research Presentation Award, Northwestern University, 2025
- Finalist, Midwest Student Data Challenge, 2026

CERTIFICATIONS

- Machine Learning Specialization, Coursera 2025
- AWS Academy Cloud Foundations 2025
- TensorFlow Developer Foundations 2026

PROFESSIONAL AFFILIATIONS

- Machine Learning Study Group Coordinator, Northwestern University, 2025 - 2026
- Teaching Assistant, Introduction to Programming, Northwestern University, 2025
- Member, Northwestern Data Science Club, 2024 - 2026

LANGUAGES

- English (Native)
- Spanish (Intermediate)

ADDITIONAL INFORMATION

Work Status : Authorized to work in United States. No sponsorship required.

REFERENCES

AVAILABLE ON REQUEST