



Adrian Bishop

Machine Learning Engineer

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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

Northwestern University 🎓 GPA: 3.8 📅 2026 📍 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

EXPERIENCE

Machine Learning Engineering Project Lead

Northwestern University Machine Learning Project 📅 September 2024 - December 2024 📍 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.

STRENGTHS

- ⚙️ **Reproducible delivery**
Turned notebook work into modular Python pipelines with recorded inputs, clear configuration, and repeatable results for classmates.
- 🔍 **Practical model judgment**
Compared evaluation tradeoffs with faculty sponsors; conversations became clearer once false alerts and missed delays had names.
- 👥 **Collaborative learning**
Led study sessions and lab discussions where peers brought difficult modeling questions and left with workable next steps.
- ✅ **Testing discipline**
Added pytest, schema checks, linting, and container builds; small checks caught issues before demonstrations and reviews.
- ♥️ **Clear technical writing**
Recorded data versions, hyperparameters, limitations, and results so research partners could follow decisions without extra meetings.

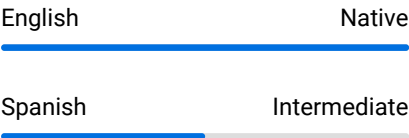
SKILLS

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

Feature engineering

Model evaluation

LANGUAGES



MY CAREER



- Machine Learning Engineering Project Lead at Northwestern University Machine Learning Project (3 Months)
- Machine Learning Research Assistant at University Research Lab (7 Months)
- Machine Learning Engineer Capstone Student at Northwestern University Capstone Project (8 Months)

- 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

University Research Lab 📅 January 2025 - August 2025 📍 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

Northwestern University Capstone Project 📅 September 2025 - May 2026 📍 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

ADDITIONAL INFORMATION

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

REFERENCES

AVAILABLE ON REQUEST