

Colby Reichenbach

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SUMMARY

Data Scientist and ML Engineer with production experience building end-to-end ML systems, MLOps pipelines, and full-stack AI applications. Built and deployed a production AVM on 1M+ real NYC property transactions with MLflow-tracked champion/challenger model governance ([SPEC-NYC](#)); a full-stack retail inventory intelligence platform with Kafka event streaming and XGBoost/LSTM forecasting ([ShelfOps](#)); and a live multi-tenant AI SaaS with Promptfoo LLM safety evaluations ([Pulse Tracker](#)). UNC Chapel Hill — B.S. Biology, Data Science minor.

SKILLS

Languages & Frameworks: Python, SQL, TypeScript, React, Next.js, Streamlit

ML & MLOps: XGBoost, Scikit-learn, MLflow, SHAP, Optuna, Pandas, NumPy, dbt

Infrastructure: FastAPI, Docker, Celery, Redis, PostgreSQL, Kafka, Supabase, Git

AI & Analytics: Generative AI, Large Language Models, Prompt Engineering, LLM Ops, AI-Assisted Development (Claude Code, Codex), OpenAI API, Google Gemini API, LLM Safety Evaluation, Promptfoo, Hypothesis Testing, A/B Testing, Feature Engineering, SHAP Explainability

PROJECTS

SPEC-NYC | Production Automated Valuation Model github.com/ColbyRReichenbach/SPEC-NYC

- Built end-to-end MLOps pipeline on 1M+ real NYC property transactions: Pandera data contracts, XGBoost with Optuna tuning, MLflow experiment tracking, and champion/challenger model arena with fail-closed promotion gates and human approval workflow.
- Implemented segment-level evaluation scorecards (PPE10, MdAPE, R²) by property tier, SHAP explainability artifacts, drift monitoring, and release readiness validation.

ShelfOps | Retail Inventory Intelligence Platform github.com/ColbyRReichenbach/shelfops

- Architected full-stack inventory forecasting platform: async FastAPI + SQLAlchemy backend, Celery task queues, PostgreSQL/TimescaleDB, Redis caching, and Kafka-compatible event streaming for real-time inventory signal processing.
- Built XGBoost/LSTM demand forecasting pipeline with model registry, fail-closed promotion gates, and multi-level React/TypeScript dashboard serving C-suite, data science, and store operations.

Pulse Tracker | Multi-Tenant AI Coaching SaaS pulse-workout.vercel.app

- Shipped live production SaaS solo using AI-assisted development: Next.js 16, TypeScript, Supabase with Row Level Security, OpenAI GPT-4o-mini, Upstash Redis rate limiting, and Sentry error monitoring deployed to Vercel.
- Implemented production LLM safety architecture: PII redaction, prompt injection detection, immutable audit logging, and Promptfoo evaluation test suites across privacy and safety dimensions.

DK Sentinel | Responsible Gaming Intelligence System draftkings-seven.vercel.app

- Built analyst intelligence platform targeting DraftKings RG Analytics: dbt transformation layer on DuckDB/Snowflake, FastAPI backend with read-only SQL execution and Snowflake-safe query guardrails, React/TypeScript frontend with persisted case lifecycle tracking.
- Implemented deterministic state regulatory compliance checks (MA/NJ/PA) logged as auditable SQL evidence records; AI-assisted HITL analyst workbench with OpenAI-powered case review.

PROFESSIONAL EXPERIENCE

Target — Team Member Chapel Hill, NC | Nov 2021 – Present

- Maintained inventory accuracy across thousands of active SKUs through weekly cycle counts, system reconciliation, and discrepancy resolution — operational context that directly informed the design of ShelfOps, a production retail inventory intelligence platform.
- Executed pricing database updates ensuring alignment between shelf labels and financial systems, developing hands-on knowledge of retail price change, clearance, and salvage batch workflows.

EDUCATION

University of North Carolina at Chapel Hill Aug 2021 – Aug 2024

B.S. Biology | Minor in Data Science