

## Contact

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## Top Skills

Optimization

Forecasting

Machine Learning

# Brennen Chadburn

Machine Learning Engineer | Data Scientist | AI  
Greater Houston

## Summary

Implement machine learning solutions at scale. Experienced building dynamic price models, optimization, LLM integration, and image classification applications for production environments. Successful implementation of high performance ML solutions for customers and internal operations use in a Fortune 100 company.

Recent work includes enterprise price arbitrage application, LLM-powered extraction workflows (LangChain, Ollama), retrieval-augmented generation (RAG) pipelines, and simulation with long-term horizon optimization solutions.

Background in developing ML workflow and deployment for image classification, one-shot, optimization, and pricing model solutions. Experience working with a variety of ML frameworks and various ML libraries such as LangChain, LlamaIndex, Tensorflow, Keras, Scikit-learn, OR-Tools, SciPy etc. Build real-time predictions and deployment and monitoring support using AWS cloud services such as CodeBuild, Fargate, ECS, and S3.

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## Experience

### Enterprise Products

3 years 3 months

#### Supervisor - ML Engineer

February 2024 - Present (1 year 9 months)

Houston, Texas, United States

- Lead machine learning and data engineering efforts in developing forecasting, simulation, and ML solutions for hydraulic modeling in cost optimization workflows.
- Implement ML models and optimization frameworks for real-time pricing, enhancing arbitrage opportunities, and cost forecasting.

- Designed multi-horizon simulation model for pipeline operations, using conditional probability sampling. Supported both long-term strategic planning and short-term policy optimization.

### Lead Machine Learning Engineer

August 2022 - March 2024 (1 year 8 months)

Houston, Texas, United States

- Build ML solutions to improve pipeline operations integrating real-time pricing and logistics constraints to enhance arbitrage opportunities and cost forecasting.
- Implemented optimization solution, simulation, and cost estimation models to aid real-time operational decision and price optimization.
- Model pipeline and replaced complex non-linear models, reducing costs and improving computation speed.

### FASHIONPHILE

2 years 8 months

#### Machine Learning Engineer Manager

January 2021 - August 2022 (1 year 8 months)

Utah, United States

- Lead team of data scientist and ML engineers
- Build dynamic product price models to increase operating profit and conversion rates
- Monitor, deploy, and improve ML models in AWS cloud-based infrastructure
- Develop computer vision solutions to provide real-time predictions for customers
- Created classification, one-shot, stacked & ensemble, timeseries and anomaly detection models

#### Sr. Machine Learning Engineer

January 2020 - January 2021 (1 year 1 month)

Lehi, Utah

- Design training and inference pipeline for image classification for product resale quotes
- Build large-scale image classification models and price forecasting solutions on AWS platform
- Provide product forecasting solutions and price optimization solutions

### Northwestern Analytics

Data Scientist (Partner)

March 2020 - October 2021 (1 year 8 months)

Chicago, Illinois, United States

- Lead research and development satellite imaging and processing
- Conduct satellite image classification and clustering
- Help create GIS solutions for Image processing, atmospheric correction, spectral analysis

Willis Towers Watson

6 years 7 months

Data Scientist - BI Analyst

July 2019 - January 2020 (7 months)

- Build natural language processing (NLP) models to make predictions and drive insights
- Develop classification models to improve customer experience through automation
- Provide statistical analytics support for the Global Data Services team

Data Analyst

February 2017 - July 2019 (2 years 6 months)

South Jordan

- Survey design, A/B testing, hypothesis testing
- Provide analytics support including search query tuning, and content performance
- Gauge customer engagement and recommend improvements

Benefit Specialist

July 2013 - February 2017 (3 years 8 months)

South Jordan, Utah

- Advised high-profile clients with evaluating health/funding benefits
- Delivered progress reports to VPs to manage client outreach
- Evaluated department productivity and created monthly performance reports

Piano Marvel

Data Scientist

November 2017 - February 2019 (1 year 4 months)

- Evaluate customer conversion and website engagement
- Construct machine learning solutions to improve online customer engagement.
- Create customer segmentation models
- Reduce labor-intensive processes such as conducting item analysis for 8,000+ exercises

- Anomaly detection

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## Education

Northwestern University

Master's degree, Data Science · (2018 - 2019)

Utah Valley University

Bachelor's degree, Behavioral Sciences · (2012 - 2014)