

CAYLER MILEY

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WORK EXPERIENCE

Senior Machine Learning Engineer

Redwood Materials

March 2023 - Present

Sparks, NV

- Led a computer vision-based battery sorting system from R&D to production, targeting 2 batteries/second (~25 metric tons/day). Designed the complete model architecture and software system, and contributed to controls, electrical, and camera specifications. Deployed to an on-prem Kubernetes cluster and edge devices.
- Built a classification pipeline using YOLO for detection and DinoV2 for embedding generation, achieving >85% accuracy across 30+ classes at <2s latency with capability to predict unseen classes without retraining. Deployed on EKS with LabelStudio and MLFlow.
- Built a Gradio application for chemical engineers to measure particle size from SEM images using SAM2 and OCR, reducing manual analysis from >4 hours per image to minutes and producing aggregate visualizations for executive reporting.
- Designed a data pipeline tracking >200 parameters with customized aggregation, forward filling, and NA accounting for a copper foil plating process. Enabled engineers to analyze lagged product quality outputs for parameter optimization.

Machine Learning Engineer

Clear Capital

August 2019 - October 2022

Reno, NV

- Developed a proprietary multi-modal classification model based on academic and internal research using PyTorch Lightning and Weights and Biases.
- Built and maintained a sequential model ingestion pipeline for appraisal QC review in production using AWS Lambda.
- Improved automated valuation model accuracy by 1% and developed automated hyperparameter tuning for model development.
- Implemented model explainability using SHAP for customer interpretability.
- Developed and maintained a computer vision-based room classification model in PyTorch Lightning.

TECHNICAL SKILLS

ML Frameworks	PyTorch, PyTorch Lightning, LightGBM, HuggingFace, vLLM, AutoGluon, Scikit-Learn
Data & Analysis	Python, Polars, Pandas, NumPy, Statsmodels, PostgreSQL, Jupyter, Seaborn
MLOps	MLFlow, LabelStudio, Ray, Dagster, Weights and Biases
Cloud & Infrastructure	Kubernetes, EKS, Docker, AWS Lambda, EC2, S3, Athena, Glue, CDK, GitHub Actions, Grafana
AI Tooling	Claude Code, ChatGPT, Model Context Protocol (MCP)

EDUCATION

University of Nevada, Reno

Master of Science in Computer Science and Engineering

September 2021

University of Nevada, Reno

Bachelor of Science in Computer Science and Engineering

Minors: **Cybersecurity** and **Battery and Energy Storage Technology**

May 2018

In Cursu Honorum, Cum Laude