

# CAYLER MILEY

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## WORK EXPERIENCE

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### 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

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### 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

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### University of Nevada, Reno

*September 2021*

Master of Science in Computer Science and Engineering

### University of Nevada, Reno

*May 2018*

Bachelor of Science in Computer Science and Engineering

*In Cursu Honorum, Cum Laude*

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