

Predicting Labor Actions in the United States

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Overview

- **Goal:** Predict probability of a strike or protest in 2025
- Data Sources:
 - Cornell's ILR Labor Action Tracker: Labor action information
 - BLS API: Employment, labor force, and CPI statistics
 - BEA: Regional price parities

Model

Target: Strike or protest occurred

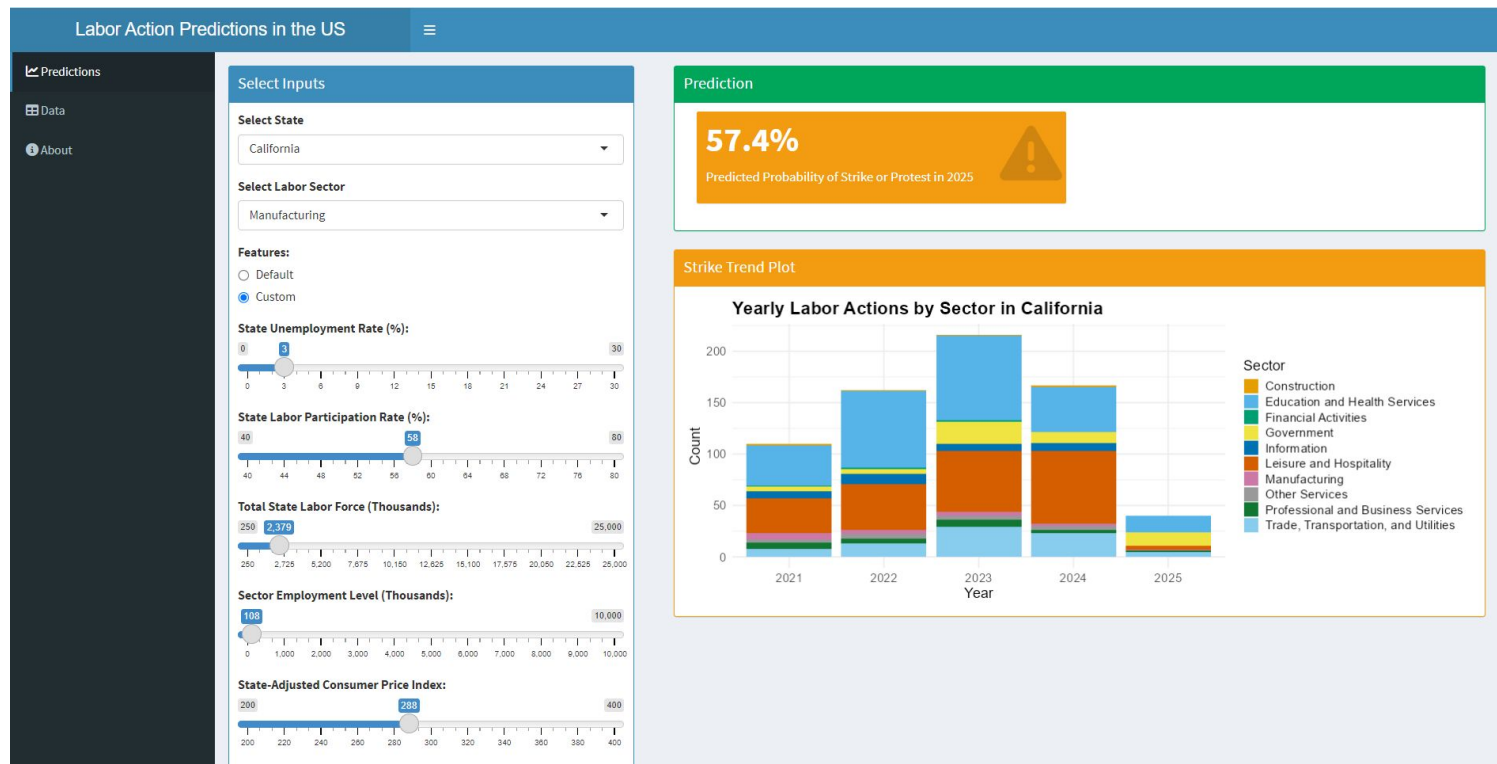
Features:

- Sector Employment
- Statewide: Unemployment rate, labor force participation rate, total labor force, adjusted consumer price index

Model: Random Forest trained on 2021-2024 data

- Tuned using grid search over mtry, nodesize, and ntree
- Final model evaluated on 2025 data – AUC: 0.83
- Hosted via Plumber API, deployed with Docker to Google Cloud Run

Shiny app



Limitations

- Limited data on both labor actions and economic indicators for many state-sector combinations
 - No wage or union data included in model
 - Labor action data starts in 2021
- Strike data sourced from media reports
 - Coverage of strikes and protests may differ by state or sector