

YouTube Comment Sentiment Analysis & Influencer Insights Platform

Project Overview & Problem Statement

Business Context

Influence Boost Inc. aims to expand its influencer network by solving a real influencer pain point instead of relying on paid marketing.

Problem

Large influencers receive thousands of YouTube comments, making manual sentiment analysis impossible. This results in missed audience feedback and poor content optimization.

Solution

Influencer Insights is a Chrome plugin backed by an ML-powered backend that analyzes YouTube comments and provides actionable sentiment insights.

System Features & Workflow

Key Features

- Real-time sentiment analysis (positive / neutral / negative)
- Sentiment distribution visualization
- Comment-level insights
- Comment summarization and keyword extraction
- Exportable reports

Workflow

1. Data collection from YouTube
2. Data preprocessing and EDA
3. Model training and MLflow experimentation
4. DVC pipeline creation
5. Model registration
6. Flask API development
7. Chrome plugin integration
8. CI/CD pipeline setup
9. Dockerization and AWS deployment

Technology Stack, Challenges & Impact

Technology Stack

- Python, scikit-learn, NLP libraries
- MLflow, DVC
- Flask, JavaScript, Chrome APIs
- Docker, AWS, GitHub Actions

Challenges

- Noisy and multilingual data
- Class imbalance
- Low-latency requirements
- Scalable deployment

Impact

A production-ready end-to-end MLOps system delivering real-time influencer insights.