

# AI-Powered Resume Screening System – FAANG-Ready Project

## Project Summary

Designed and implemented an AI-powered resume screening system to address inefficiencies in traditional ATS pipelines. The system evaluates candidate-job fit using semantic understanding, multi-factor scoring, and explainable AI while preserving privacy through local LLM inference.

## Core Capabilities

- Semantic resume–job description matching using sentence embeddings
- Skill inflation detection via claim–evidence analysis
- Explainable scoring with transparent breakdowns
- Human-in-the-loop decision support system

## System Architecture

- Frontend: React + Next.js for resume upload, visualization, and feedback
- Backend: Node.js + Express for API orchestration and file handling
- AI Service: Python-based NLP pipeline for embeddings and scoring
- LLM Layer: Local inference using Ollama for privacy-preserving explanations

## Key Technical Highlights

- Used Sentence Transformers (MiniLM) for semantic understanding
- Implemented weighted multi-factor scoring (semantic, skills, experience, education, keywords)
- Designed skill credibility scoring based on context depth and project evidence
- Ensured graceful degradation when GPU or LLM services are unavailable

## Engineering Decisions & Trade-offs

- Chose embeddings over keyword matching to reduce false negatives
- Used local LLM inference to avoid data leakage and control costs
- Applied rule-based logic for core decisions and LLMs only for explanation
- Designed stateless services for horizontal scalability

## Scalability & Reliability

- Stateless backend supporting horizontal scaling
- AI service isolated for independent scaling and fault tolerance
- Identified bottlenecks: PDF parsing, model cold starts, GPU contention
- Proposed solutions: model warm-up, async pipelines, GPU pooling

## What This Demonstrates

- End-to-end system design and AI integration
- Strong understanding of applied NLP and embeddings
- Production-aware engineering mindset
- Explainable AI and ethical system design principles