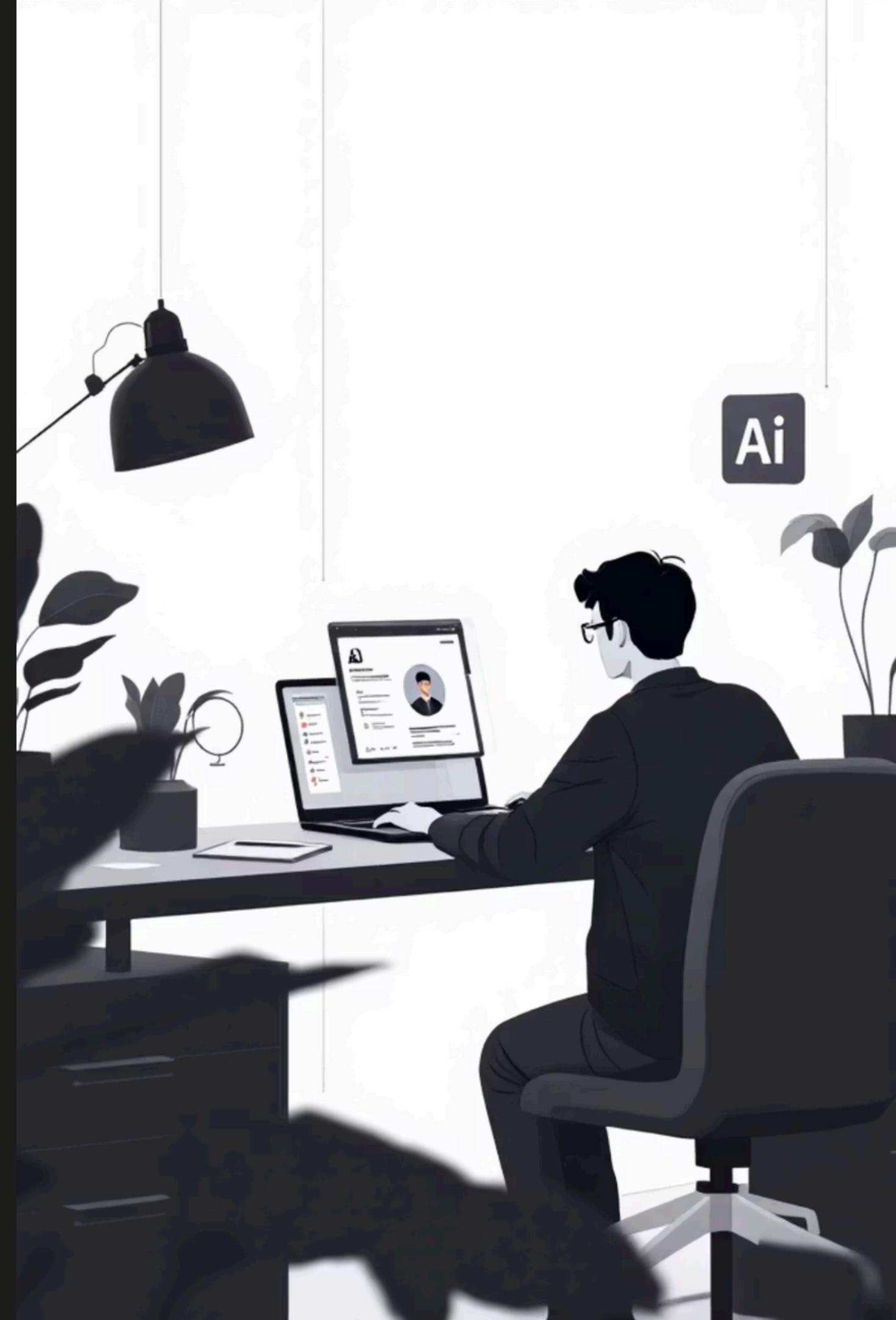


MERN STACK · AI-POWERED

AI Resume Analyzer & Job Recommendation System

A full-stack web application that analyzes resumes against 493+ real job roles, calculates ATS match scores, detects skill gaps, and delivers AI-generated career feedback – built to give every candidate a competitive edge.



The Problem: Students Are Flying Blind

No ATS Visibility

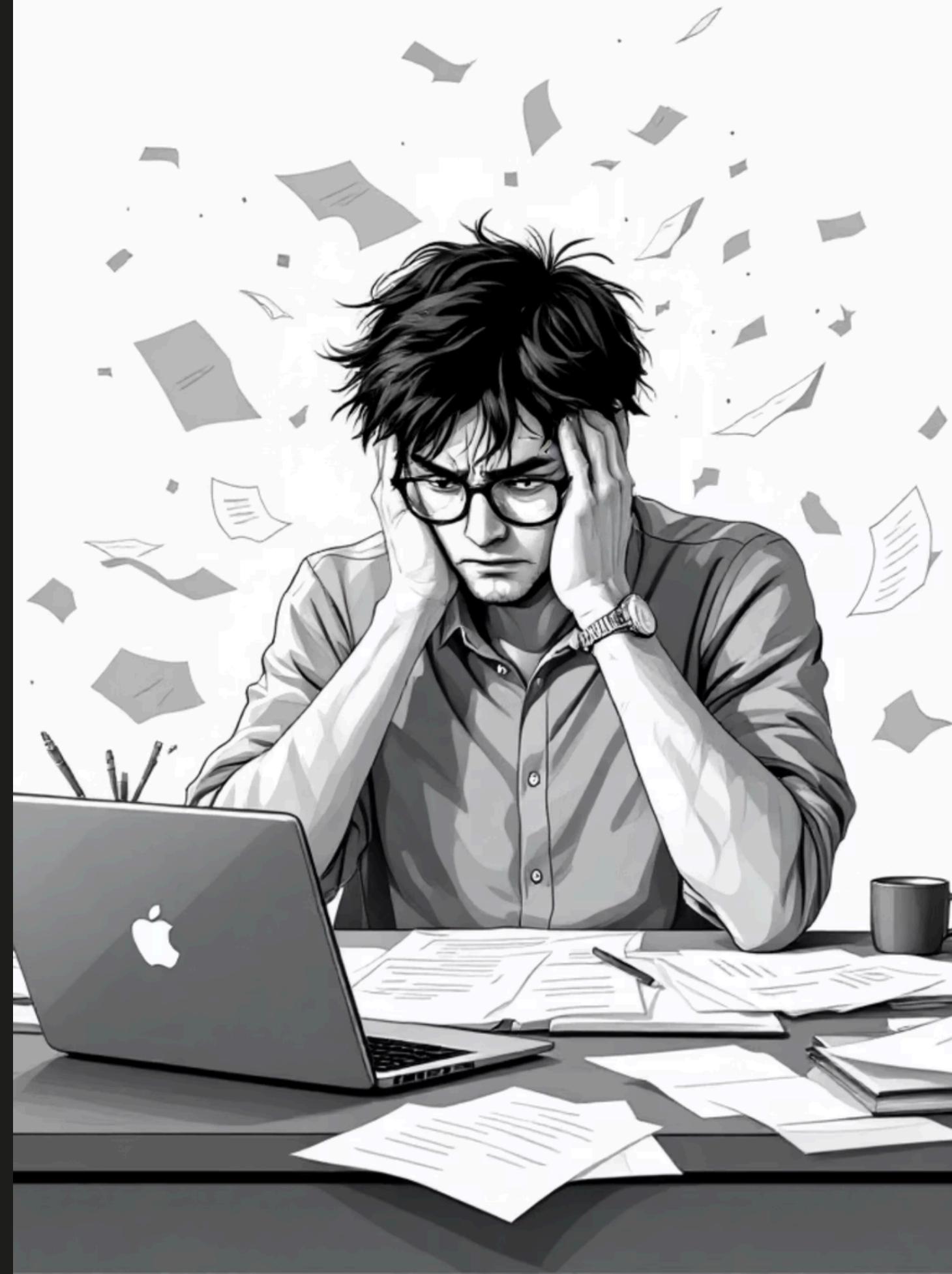
Applicants submit resumes without knowing how they score against automated screening systems.

No Skill Mapping

There's no clear way to see which skills are missing for a target role — or how close the match actually is.

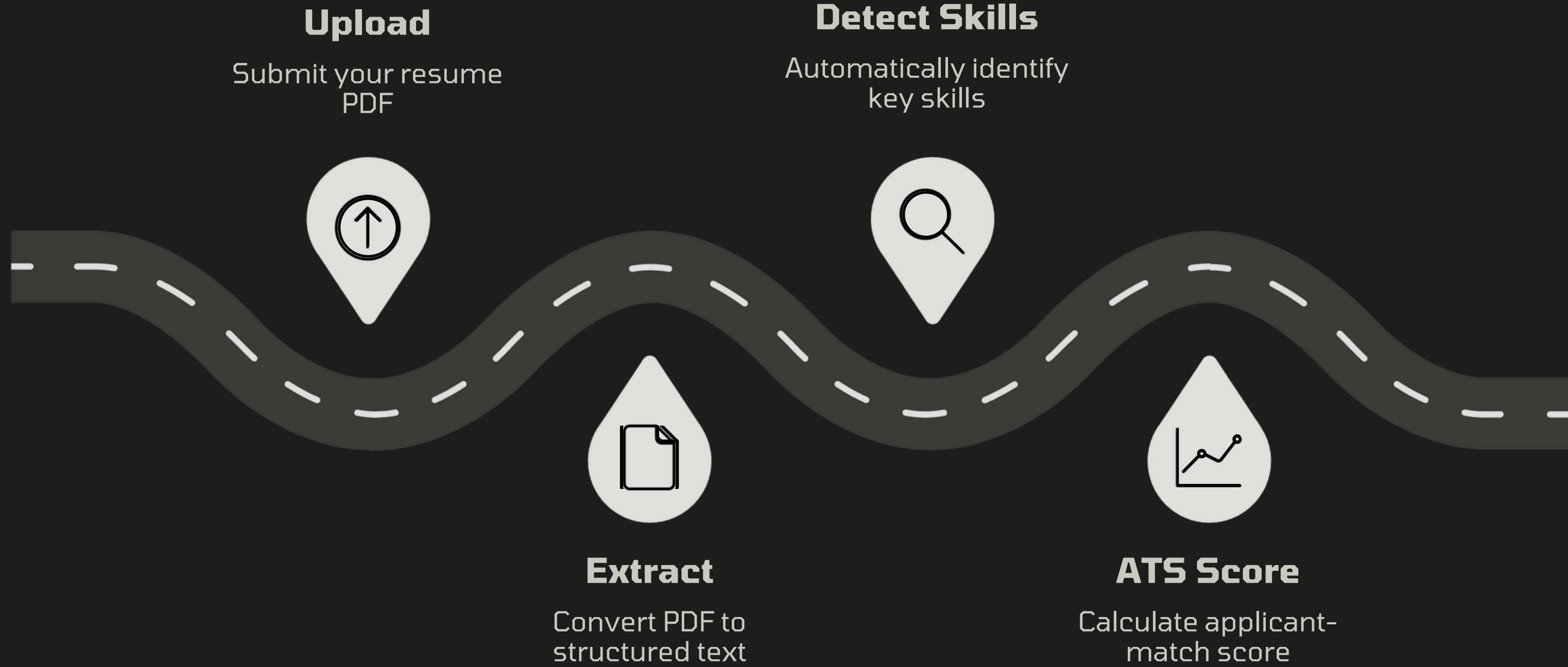
Slow Manual Review

Career advisors and recruiters spend hours on feedback that could be automated and delivered instantly.



The Solution: End-to-End Resume Intelligence

A single platform that takes a raw PDF resume and returns actionable, AI-powered insights in seconds.



Every step is automated – from text extraction to job matching – giving users a complete picture of where they stand and exactly what to improve.

Tech Stack



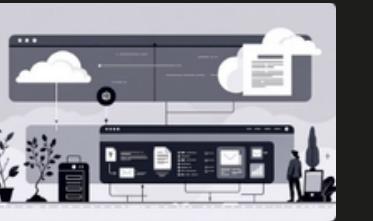
Frontend

React.js with Tailwind CSS for a responsive, modern UI. Axios handles all API communication.



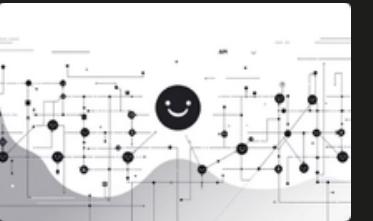
Backend

Node.js + Express.js power the API. Multer handles PDF uploads; a custom extractor parses resume text.



Database

MongoDB + Mongoose store user data, parsed resumes, match scores, and the full job role dataset.



AI Layer

Hugging Face API generates professional summaries, strengths analysis, and personalized career advice.

Database Design

Three MongoDB collections power the entire application – cleanly separated by domain responsibility.



Users

Stores **name**, **email**, and hashed **password**. JWT tokens secure every authenticated session.



Resumes

Linked to user. Contains **detectedSkills**, **matchScore**, **missingSkills**, **role**, and **aiFeedback** – full analysis history per upload.



Job Roles

493+ roles with **title**, **requiredSkills**, **description**, **level**, and **salaryRange** – imported from a curated IT dataset.

Core Matching Logic

ATS Match Score Formula

$$\text{Match Score} = \frac{\text{Matched Skills}}{\text{Total Required Skills}} \times 100$$

A transparent, deterministic score calculated against each job role's required skill list — no black-box guessing.

Job Recommendation Engine

01

Detect skills

Extract all skills from the uploaded resume.

02

Score all roles

Calculate match percentage against every job in the dataset.

03

Rank & return

Sort descending and surface the top-matching roles.

AI Feedback & Dataset Integration

AI-Generated Output

Resume text is sent to Hugging Face API, which returns a **professional summary, strengths, improvement suggestions, and career advice** – going far beyond a raw score.

493+ Job Roles Dataset

A curated CSV of real IT job roles – each with required skills, experience level, salary range, and description – imported directly into MongoDB for live matching.



Features Shipped & Challenges Resolved

9 Features Implemented

→ **JWT Authentication**

Secure login with token-protected routes.

→ **PDF Upload + Skill Extraction**

Multer + custom parser pipeline.

→ **ATS Scoring + Gap Detection**

Real-time match score and missing skills list.

→ **AI Feedback + Resume History**

Persistent analysis records per user.

Debugging Wins

- Gemini API 404 → migrated to Hugging Face
- Router migration conflict → resolved
- Protected route token errors → fixed middleware
- CSV import path errors → corrected
- useEffect dependency loop → resolved
- 404 on analyze route → route order fixed



All critical bugs resolved before final build.

Real-World Impact & What's Next

Immediate Value

Reduces recruiter review time, empowers students with actionable feedback, and brings ATS transparency to every applicant — regardless of budget.

Roadmap

Skill-gap learning resources, company-specific matching, real-time job API feeds, auto-rewrite mode, and an admin analytics dashboard.

SaaS Potential

Scalable architecture with JWT auth and a modular backend makes this a deployable, monetizable product — not just a prototype.

"AI-powered Resume Intelligence for Smarter Career Growth"

