

CareerOS

Introduction

CareerOS is an innovative AI-powered platform designed to manage and enhance an individual's entire career journey, from learning and skill development to job matching and long-term career planning. By integrating advanced AI technologies, such as large language models (LLMs) and multimodal feedback systems, CareerOS acts as an intelligent agent that understands user needs, adapts to their progress, and connects them to work opportunities that align with their skills and aspirations. The platform combines personalized learning paths, gamified skill-building, career simulations, and smart candidate matching to create a seamless, interconnected system for both candidates and recruiters.

CareerOS is a holistic career companion that not only prepares candidates for job opportunities through tailored learning and simulation but also provides recruiters with deep insights into candidate readiness, behavior, and long-term potential. It leverages real-time market data, behavioral analytics, and predictive modeling to ensure candidates are job-ready and recruiters can make informed hiring decisions.

Scope

The scope of CareerOS is to provide a comprehensive career management system for users who are willing to share personal data, enabling personalized insights and enhanced system performance. The platform targets:

- **Job seekers** (students, early-career professionals, and career switchers) who want personalized learning, interview preparation, and career planning tools.
- **Recruiters** who seek candidates with verified skills, behavioral insights, and high job-fit scores.

The system tracks user progress, identifies skill gaps, and suggests relevant learning resources and career paths based on live job market trends. It also provides recruiters with explainable scorecards, retention predictions, and coachability metrics to streamline hiring.

Users and their role:

Anonymous user:

- Anonymous users can explore the platform's basic features and view public content to understand CareerOS capabilities.
- They can register to become candidates and access the full suite of career development tools.
- Limited access to basic learning resources and platform overview without personalized AI recommendations.

Candidate (Registered user):

The main career development features are available to registered candidates. These include:

- **AI Interview Simulator:** Access to AI powered interview practice with real-time feedback on logic, fluency, and job profile alignment.
- **Auto-Curated Learning Path:** Personalized skill development roadmaps that adapt based on chosen roles, market demands, and performance data from other activities.
- **FutureCast Career Decision Engine:** Interactive career simulation tool that models long-term outcomes of various career choices using real salary data, mental health scores, and performance trajectories.
- **SkillForge Gamified Learning:** Conversion of learning paths into engaging quests and challenges with XP progression and achievement systems.
- **MindFlow:** Soft skills training through AI-powered roleplay scenarios for communication, negotiation, and conflict resolution in professional environments.
- **LifeScript AI Dashboard:** An intelligent system for journaling decisions, successes, failures, and moods, which generates a career narrative.
- Access to mentor matchmaking and insightful advice based on behavioral trends.

Recruiter user:

Recruiters have access to advanced hiring tools and candidate intelligence features:

- **AI Job Post Engine:** Automated generation of learning paths, interview questions, and skill assessments based on job descriptions.
- **Smart Candidate Matching:** AI-powered matching based on historical data (past performance interview outcomes, hiring success), skill performance, simulation outcomes, and growth projections, smart resume screening.
- **Hiring Assistant Dashboard:** AI-generated candidate profile summaries with readiness indicators and confidence assessments.
- **Custom Assessment Creator:** Dynamic test generation tailored to specific roles.
- **Asynchronous Interview Platform:** Interview submissions with AI scoring for emotion, confidence, and domain relevance.
- Access to candidate behavioral analytics, hiring trend insights.

Admin user:

Administrative users can perform system maintenance and oversight functions along with everything a registered user can do:

- They can manage user accounts, disable or remove problematic users with appropriate documentation.
- They can configure AI model parameters, update market data sources, and manage platform-wide settings.
- They can generate system analytics, monitor AI performance, and implement improvements.

Use cases of the system:

- **Registration:** An anonymous user and the system are the actors of the use case. The anonymous user provides required information, including career goals, current skills, educational background, and career preferences. The system validates this information, creates an account, and generates initial personality and skill assessments through AI Engine to populate the user profile with baseline data for personalized recommendations.
- **AI Interview Simulation:** A candidate and the system are the actors of the use case. The candidate selects a job role, then engages with the AI interviewer by responding to dynamically generated questions. The system analyzes the candidate's responses for logic, fluency, and job profile alignment using AI. The system then provides detailed feedback, scores the performance, and automatically updates the candidate's learning path based on identified weaknesses.
- **Learning Path Generation:** A candidate and the system are the actors of the use case. The candidate inputs their target career goals. The system analyzes this information along with interview performance data, current market demands, and skill gaps to curate personalized learning resources from various platforms. The system continuously adapts the learning path based on the candidate's progress, mastery levels, and changing market trends.
- **Career Simulation (FutureCast):** A candidate and the system are the actors of the use case. The candidate selects a career decision point or scenario they want to explore. The system presents interactive decision trees with realistic outcomes based on real data.
- **Gamified Learning (SkillForge):** A candidate and the system are the actors of the use case. The candidate accesses their personalized learning quests generated from their learning path. The system converts traditional learning content into engaging challenges and tracks the candidate's completion rates, skill mastery, and engagement patterns. Based on performance, the system awards XP, which can be used to unlock features.
- **Soft Skills Training (MindFlow):** A candidate and the system are the actors of the use case. The candidate enters roleplay scenarios for communication training, such as salary negotiation or conflict resolution. The system presents challenging interpersonal

situations using AI-powered dialogue, analyzes the candidate's communication patterns and responses using NLP, then provides suggestions for better phrasing and builds a comprehensive soft skills profile that influences future recruiter matching algorithms.

- **Personal Reflection (LifeScript):** A candidate and the system are the actors of the use case. The candidate logs their daily career decisions, successes, failures, and mood states through the dashboard interface. The system uses AI to transform this data into a coherent career narrative, predicts future blockers or burnout risks, and generates a summary.
- **Job Posting Creation:** A recruiter and the system are the actors of the use case. The recruiter uploads a job description with required skills and qualifications. The system analyzes the job requirements and automatically generates corresponding learning paths for candidates, custom interview questions, and skill assessments. This creates a direct pipeline from job requirements to candidate preparation.
- **Smart Candidate Matching:** A recruiter and the system are the actors of the use case. The recruiter specifies their hiring requirements and filters. The system analyzes all registered candidates using behavioral data from SkillForge performance, FutureCast outcomes, interview traits, and LifeScript growth projections. The system presents ranked candidates with explainable match scores, coaching potential assessments, and retention predictions, helping recruiters to make data-driven hiring decisions.
- **Custom Assessment Creation:** A recruiter and the system are the actors of the use case. The recruiter selects a job domain and specifies assessment requirements. The system suggests relevant assessment components. The recruiter can customize these suggestions, and the system generates the final assessment.
- **Asynchronous Interview Evaluation:** A recruiter and the system are the actors of the use case. The recruiter sets up interview questions and sends them to candidates. Candidates submit interview responses, which the system processes using AI to analyze emotion, confidence levels, honesty signals, and domain relevance. The system compares responses against top performers and provides the recruiter with detailed evaluation reports and hiring recommendations.
- **Profile Management:** An admin user and the system are the actors of the use case. The admin user monitors platform activity and user behavior patterns. When necessary, the admin can disable or permanently remove user accounts by providing appropriate reasons to the system. The admin user can also monitor overall platform analytics.

Technology

- **Frontend:** React with Tailwind CSS for styling
- **Backend:** Spring Boot with JPA, Hibernate
- **AI/ML:** FastAPI Python server
- **Database:** PostgreSQL