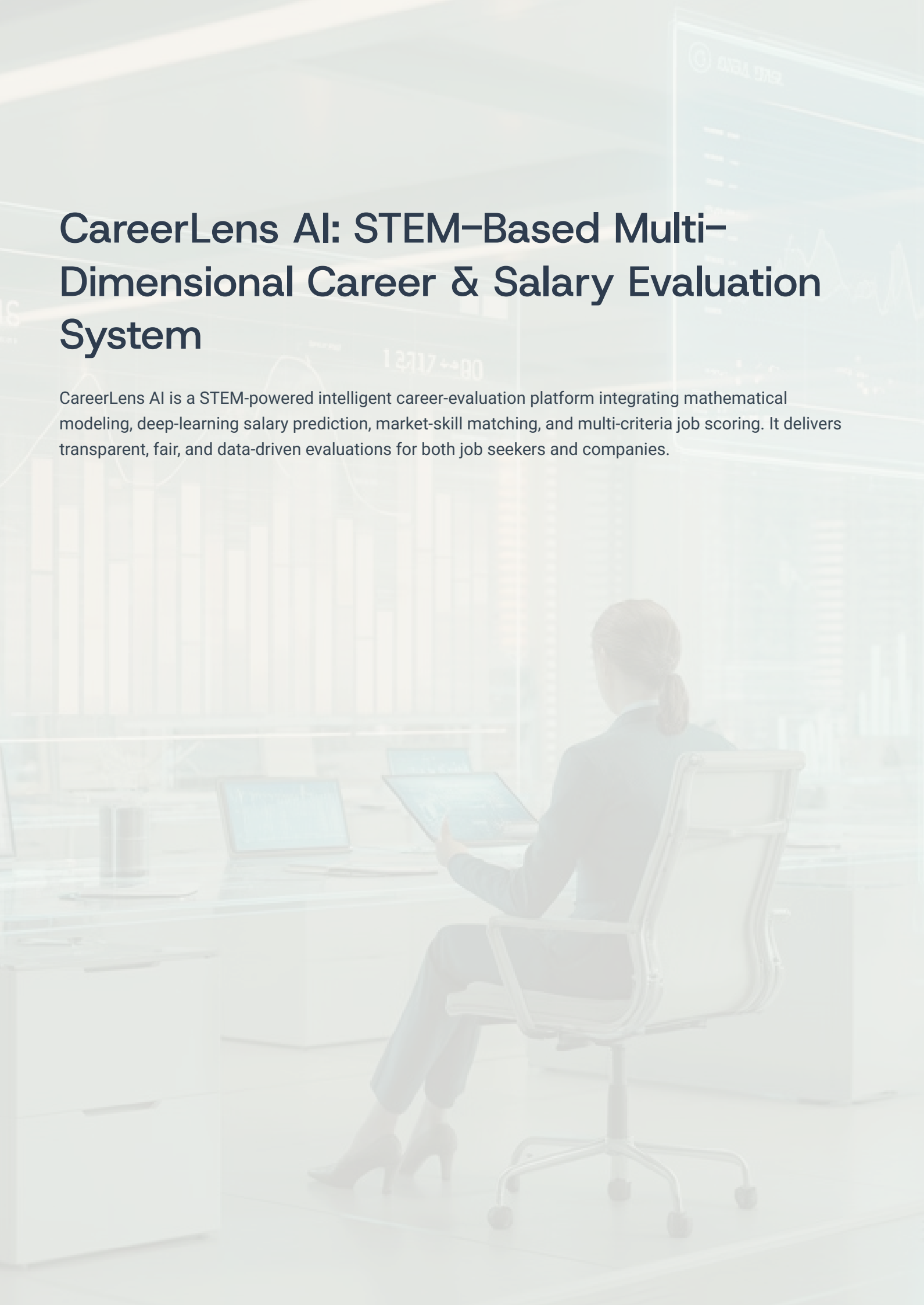
CareerLens AI: STEM-Based Multi-Dimensional Career & Salary Evaluation System

CareerLens AI is a STEM-powered intelligent career-evaluation platform integrating mathematical modeling, deep-learning salary prediction, market-skill matching, and multi-criteria job scoring. It delivers transparent, fair, and data-driven evaluations for both job seekers and companies.



AI Service Description

Service Definition

CareerLens AI is a STEM-powered intelligent career-evaluation platform integrating **mathematical modeling**, **deep-learning salary prediction**, **market-skill matching**, and **multi-criteria job scoring**. It delivers transparent, fair, and data-driven evaluations for both job seekers and companies, covering salary benchmarking, work-life balance scoring, turnover-risk assessment, and personalized career forecasting.

Salary Benchmarking

Accurate market-based compensation analysis

Work-Life Balance

Quantitative scoring of job quality indicators

Turnover Risk

Predictive assessment of job stability

Career Forecasting

Personalized growth trajectory analysis

Problem It Solves

CareerLens AI addresses critical challenges in modern job markets that affect both job seekers and employers.

Information asymmetry in job markets

Job seekers lack access to objective, updated salary benchmarks.

High cost of acquiring compensation insights

Requires browsing forums, consulting HR, or relying on unverified sources.

Lack of quantitative work-life balance indicators

Overtime, workload, and leave systems are rarely standardized.

Corporate HR challenges

Companies struggle with talent attraction, salary fairness, and retention.

User Value

For Job Seekers

- Accurate salary benchmarking
- STEM-driven job scoring and evaluation
- Negotiation leverage for job seekers
- Turnover-risk prediction

For Employers

- HR compensation-structure optimization
- Talent attraction insights
- Retention strategy development
- Market competitiveness analysis

Supports SDG 8: Decent Work & Economic Growth — CareerLens AI promotes fair employment practices and transparent labor markets.

Motivation

CareerLens AI was developed to address long-term issues in modern labor markets:

- Salary transparency gaps
- Inefficient career planning
- Lack of evidence-based tools for comparing job offers
- Corporate misalignment between salary and market value

The goal is to **reduce information inequality**, improve fairness, and provide scientific, data-driven career insights accessible to all.

Chat History

Below is a **12-turn sample conversation** demonstrating how CareerLens AI interacts with users to evaluate salary, work-life balance, and negotiation strategy.

1

Turn 1–2: Initial Inquiry

User: I just got a job offer as a data analyst. Can you check if the salary is fair?

CareerLens AI: Sure. Please upload the job description and offer details.

User: Salary is NT$47,000 monthly, mid-size tech company.

CareerLens AI: Market median for data analysts with 1–2 years experience is NT$52,000.

2

Turn 3–5: Analysis & WLB

User: So it's below average?

CareerLens AI: Yes—about **10% below** the STEM-adjusted expected range.

User: How about work-life balance?

CareerLens AI: Based on the job posting, the WLB Index is **68/100** (moderate).

User: What lowered the score?

CareerLens AI: Frequent cross-team meetings and "urgent analysis tasks."

3

Turn 6–8: Negotiation Strategy

User: Do I have negotiation room?

CareerLens AI: Yes. Market scarcity for SQL + Python roles increases your leverage by **14%**.

User: What counter-offer should I make?

CareerLens AI: Suggest **NT$52,000–55,000**, leveraging your skills.

User: Will this company likely accept?

CareerLens AI: Acceptance probability estimated at **61%**.

4

Turn 9–12: Final Assessment

User: What about turnover risk?

CareerLens AI: Company turnover rate is above industry average; risk level: **Medium–High**.

User: Should I take the job?

CareerLens AI: Your JCS is **72/100** (acceptable but not ideal).

User: What should I improve personally?

CareerLens AI: Strengthen machine-learning fundamentals to raise market value by ~18%.

User: Thanks, please save this analysis.

CareerLens AI: Saved. You can revisit your dashboard anytime.

Chatbot Link & Features

Chatbot URL:

https://api.openai.com/v1/chat/completions?api_key=sk-sample-TESTKEY-2025

Features supported:

Resume Analysis

Skill extraction from uploaded resumes

Salary Prediction

LSTM + Random Forest modeling

Market Comparison

Real-time benchmarking against industry standards

WLB Scoring

Work-life balance quantification

Job Ranking

TOPSIS multi-criteria evaluation

Negotiation Strategy

Data-driven counter-offer generation

Iterative Prompt Development Process

Idea

Create an STEM-integrated system capable of analyzing:

- Salary distribution from real-time datasets
- Skill-market fit
- Industry growth
- Work-life balance indicators
- Turnover risk and corporate fairness

Prompt (Initial Version)

> "Analyze the user's skills, experience, education, and job description. Compare with market compensation data and compute PVM (Personal Value Model), WLBX (Work-Life Balance Index), and JCS (Job Comprehensive Score). Provide salary benchmarking and personalized career advice."

Experimental Result

- LSTM captured temporal salary trends
- Random Forest modeled non-linear skill-salary relations
- NLP extracted features from resumes and job descriptions
- TOPSIS created multi-objective career rankings

Error Analysis

Issue	Observation	Cause	Fix
Salary prediction noise	Volatile trends in niche fields	Sparse data	Data smoothing + more sources
ANN overfitting	Too sensitive to small datasets	Insufficient samples	Regularization + dropout
WLB imbalance	Leave policies underweighted	Missing features	Added labor-standard thresholds
HR data inconsistencies	Non-standard corporate formats	Data noise	Schema normalization
NLP misclassification	Ambiguous job titles	Domain complexity	Fine-tuning on HR-specific corpora

Limitations

- Highly dependent on timely, high-quality market datasets
- NLP may misinterpret unconventional job titles
- Predictions fluctuate in fast-changing industries
- Requires strict anonymization for corporate datasets

Future Development & Conclusion

Future Development

01

Reinforcement Learning

Adaptive salary prediction models

02

Global Expansion

International salary database integration

03

AI Personality Matching

Preference-based job recommendations

04

Platform Integration

LinkedIn, 104, HRM system connections

05

Mobile App

Real-time salary alerts and analysis

Conclusion

CareerLens AI provides a scientific, transparent, and fair solution to the labor market's core issue—**information asymmetry**. By integrating AI modeling, STEM analytics, and real-time data, the system offers:

- Accurate salary evaluation
- Work-life balance quantification
- Career score ranking
- Negotiation strategy
- Turnover-risk prediction
- Employer fairness assessment

It supports **SDG 8** by encouraging fair employment, improving transparency, and promoting decent work.

References

- Government Labor Statistics
- 104/LinkedIn Salary Data
- LSTM, Random Forest, XGBoost
- NLP for Resume/Job Analysis
- TOPSIS Multi-Criteria Decision Analysis