CV Verification System Project Report

1. System Architecture and Design Decisions

1.1 Overall Architecture

This project developed an automated AI agent system to verify the consistency between candidates' resume information and public social media profiles. The system adopts a modular, layered architecture consisting of three core components:

1. Resume Parsing Layer: Responsible for downloading PDF resumes from specified data sources and converting unstructured text into structured JSON data containing fields such as name, educational background, and work experience.

2. MCP Integration Layer: Connects to remote social media services via a standardized protocol, providing tools for user search and profile retrieval, acting as a bridge between the agent and external platforms.

3. Verification & Decision Layer: As the system core, it uses extracted resume information to locate users on social media, retrieves public profiles, compares them with resumes, detects information discrepancies, and generates verification reports.

1.2 Key Design Decisions

1.LLM Selection: Gemini 2.5 Flash was chosen for its balance of speed and cost-effectiveness, making it ideal for text structuring tasks and seamless integration in cloud environments.

2.Tool Integration: The MCP protocol was used to provide a standardized interface for connecting to external services, simplifying integration complexity and allowing the agent to focus on core verification logic.

3.Error Handling: Dual JSON parsing and multi-stage exception capture were implemented to enhance system robustness, ensuring stable operation even with incomplete data.

4.Data Storage: In-memory lists were used for small-scale data processing, with final results saved as JSON files to balance efficiency and traceability.

2. Agent Workflow and Tool Usage Strategy

2.1 End-to-End Workflow

1. Environment Initialization: Configure dependencies, load API keys, and initialize

LLM instances.

2. Resume Data Preparation: Batch download and parse PDF resumes to extract structured information.

3. Service Connection: Establish secure connections to social media platforms and validate available tools.

4. Batch Verification: Iterate over all resumes, sequentially executing user search, profile retrieval, information comparison, and report generation.

2.2 Tool Usage Strategy

1.User Search Tool: Serves as the verification entry point, locating potential social media accounts via fuzzy name matching to improve recall.

2.Profile Retrieval Tool: Fetches public user profiles as the key basis for information comparison.

3.LLM: Used not only for resume structuring but also extensible for result analysis and report generation.

3. Verification Results and Analysis

The system verified 5 sample resumes, and the results showed:

1.Some resumes exhibited discrepancies in educational background and current company information when compared to social media profiles, indicating potential information inconsistency risks.

2.A few resumes were skipped due to no matching users found or empty profiles, indicating limited data source coverage.

3.The overall verification process was stable, effectively identifying information discrepancies and providing data support for recruitment and compliance decisions.

4. Conclusion and Future Outlook

This project successfully built an automated resume verification system that significantly improved information verification efficiency through AI agent technology. The system's modular design ensures good scalability, allowing integration of more data sources and verification dimensions. Future work can optimize search algorithms, expand data sources, and introduce more refined comparison logic to further enhance system accuracy and coverage, providing more reliable technical support for recruitment and compliance processes.

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