

I. System Overview

SearchPal is a Python-based automation tool that employs an agentic workflow to handle recruitment tasks. Unlike simple keyword generators, SearchPal understands context, mapping specific engineering achievements (e.g., distributed task scheduling with Kubernetes) to the requirements of top-tier tech firms (e.g., Affirm).

II. Technical Architecture

- Framework: CrewAI (for multi-agent orchestration).
- Persona Modules:
 - Tech Job Researcher: Uses web-scraping logic to extract hard skills (Python, Kotlin) and core competencies from URLs.
 - Personal Profiler: Conducts a "deep dive" into the candidate's master resume to extract metrics-driven achievements.
 - Resume Strategist: Merges findings to produce an ATS-optimized Markdown document.
- LLM Integration: GPT-4 / Claude-3 API via LangChain.
- Environment: Python 3.x, python-dotenv for secure credential management.

III. Functional Features

1. Autonomous Research: Automatically identifies company-specific values and tech stack requirements.
2. Contextual Optimization: Re-ranks and re-phrases candidate projects to mirror the job posting's language without losing technical accuracy.
3. Interview Intelligence: Generates a comprehensive question bank (General, Technical, Behavioral, and Closing) based on the intersection of the job and the user's specific experience.

IV. Evidence of Execution

During testing, the system successfully processed a Software Engineer profile with experience in distributed systems (AWS, Kubernetes) and API development (Python). For a role at Affirm, the system produced 11 targeted interview questions, including specific technical deep-dives into MySQL and distributed system scalability.

V. Future Roadmap

- Tool Integration: Adding Google Search tools to allow agents to research recent company news for better interview prep.
- File Transformation: Automated conversion of Markdown outputs into LaTeX-styled PDFs.