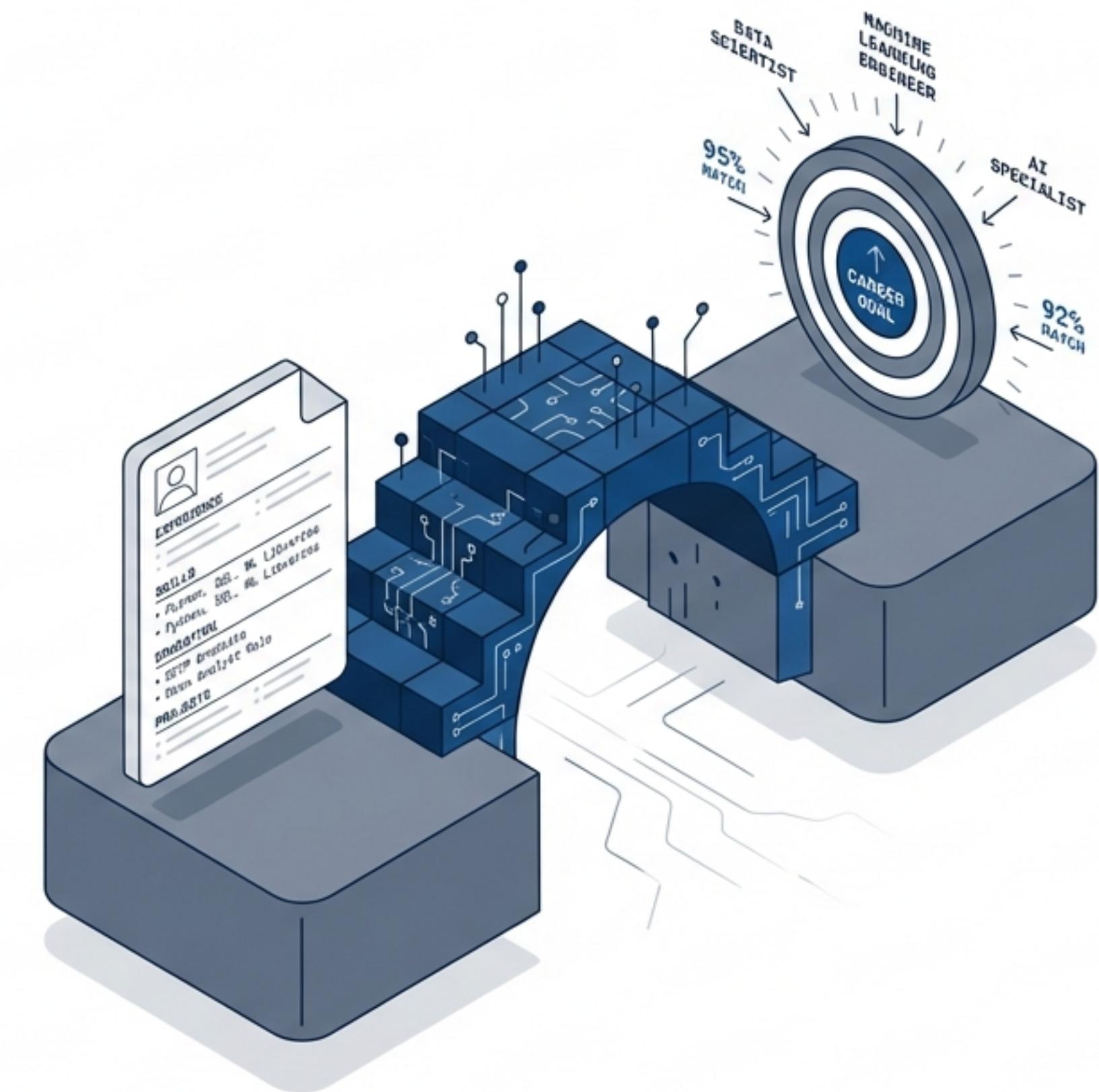


DSA1 CAPSTONE PROJECT

# SkillBridge AI

**AI-Driven Career Intelligence  
for Singapore's SCTP Learners  
& Career Switchers**



Empowering Singapore's Workforce

Figure 1. The SkillBridge AI Journey: Bridging the Gap from Profile to Career

# The Career Transition Struggle

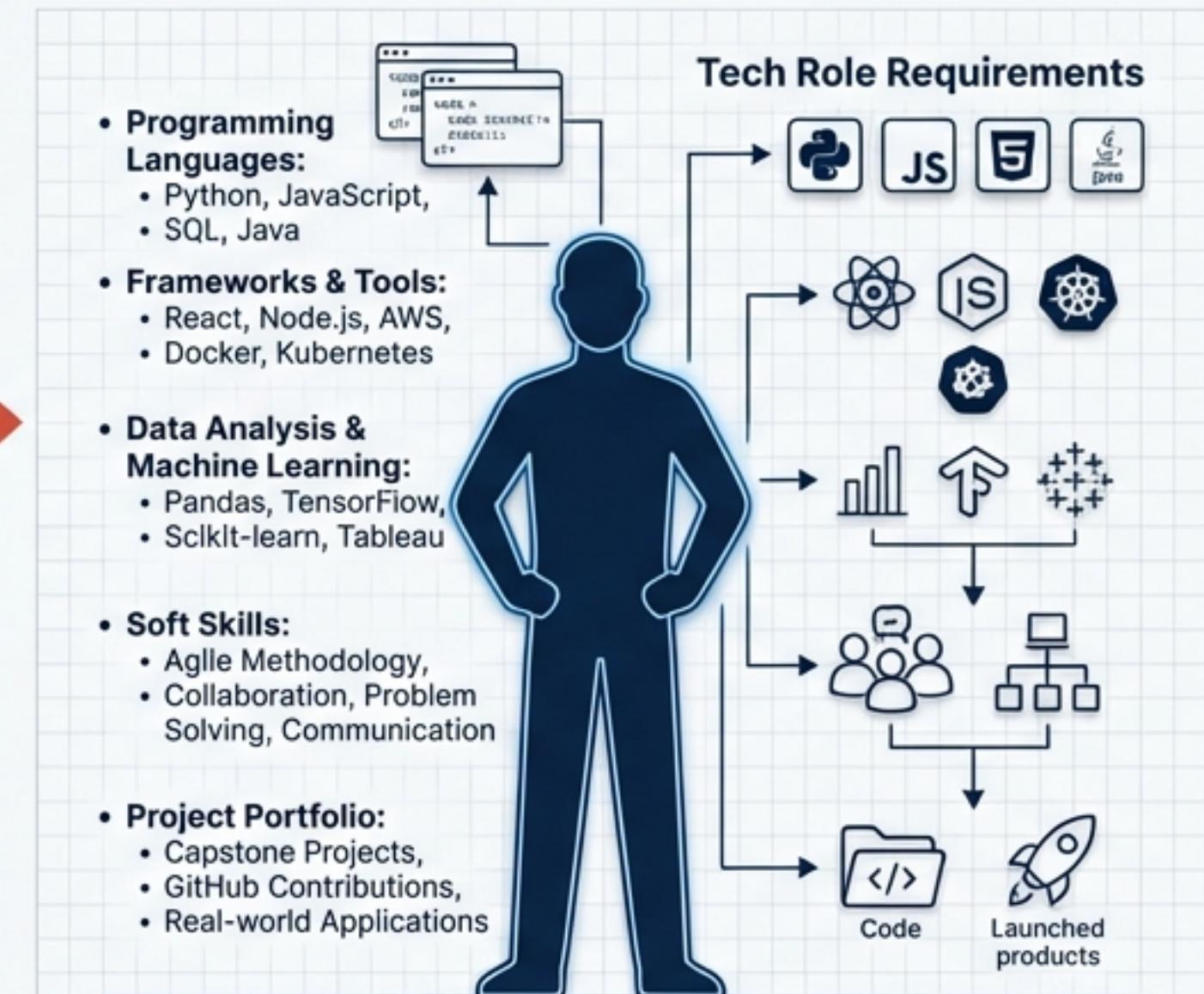
## Current State



## THE GAP

Disconnect between existing experience and high-demand tech requirements.

## Future State



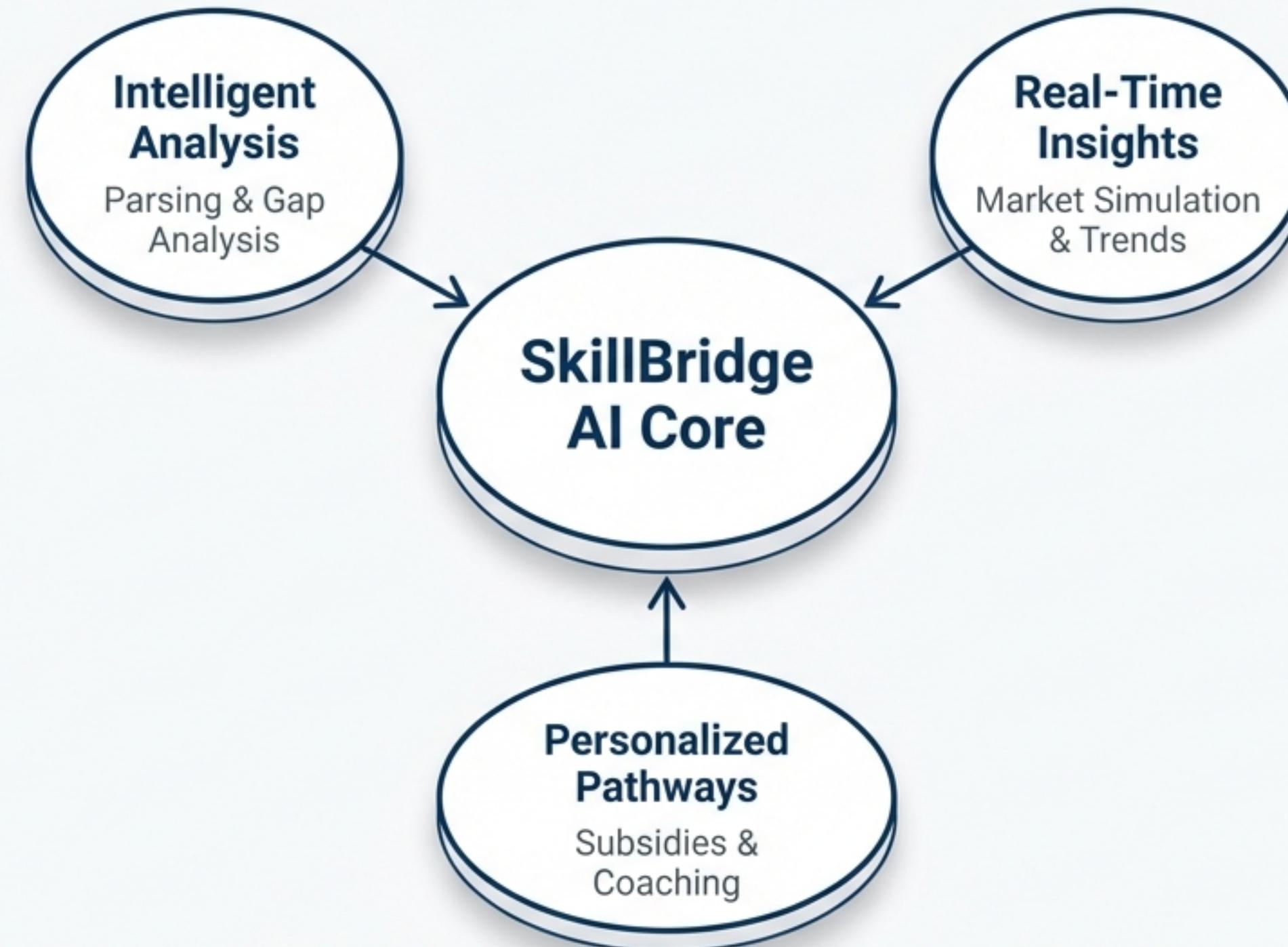
**Target Audience:** Singapore's SCTP Learners & Mid-Career Professionals

**The Gap:** Disconnect between existing experience and high-demand tech requirements

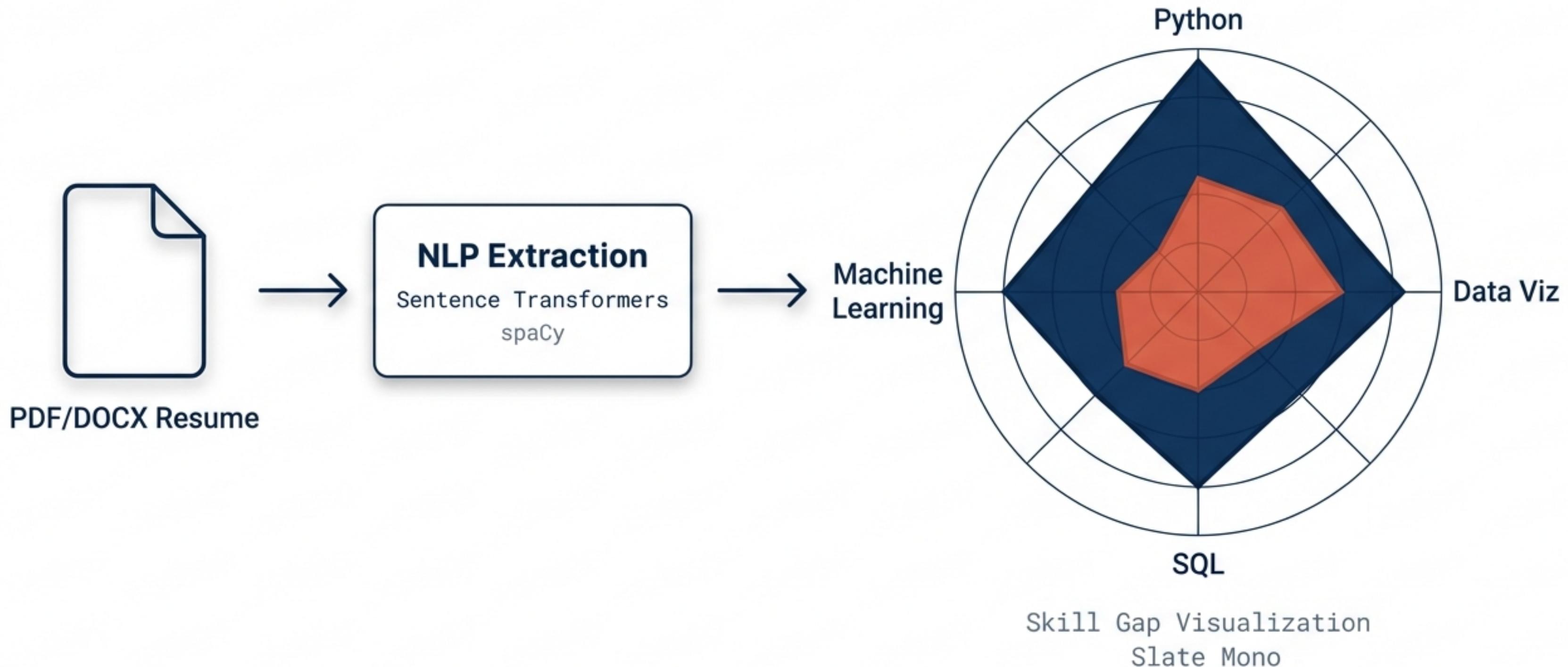
**The Goal:** Bridge the gap using data, not just intuition

# A Comprehensive Acceleration Platform

Integrating AI, real-time market data, and the SkillsFuture Singapore framework.



# Intelligent Analysis & Smart Profile Parsing



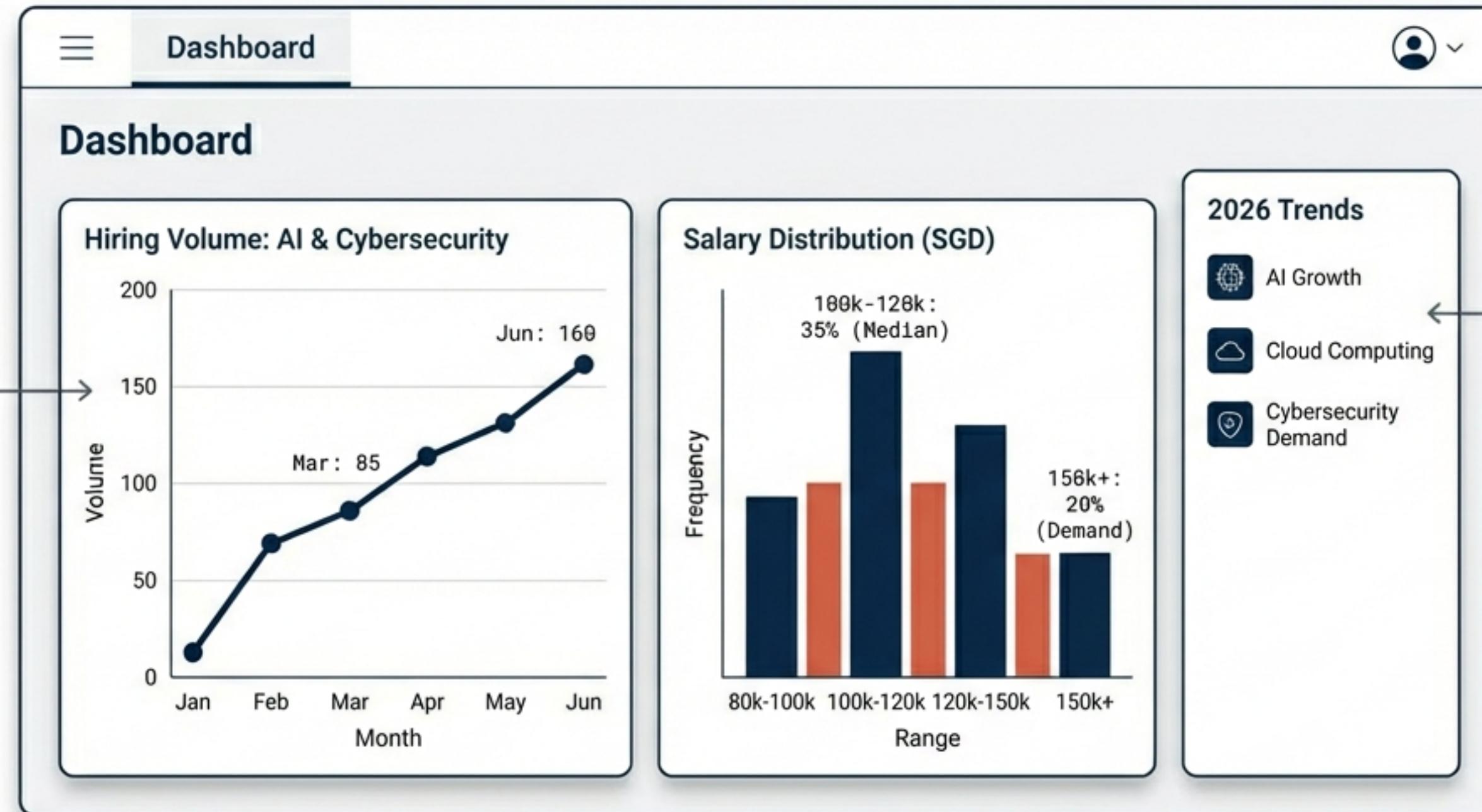
# The Hybrid Job Matching Algorithm

Finding the Perfect Fit by balancing semantic understanding with hard requirements.



# Real-Time Market Insights & Simulation

**Live Market Simulator:**  
Tracks daily fluctuations in Salary, Volume, and Demand.



**Future-Proofing:**  
Benchmarks against projected 2026 growth sectors.

# Interactive AI Career Coach

How do I improve my Python skills for this role?

Based on your gap analysis, you are missing '**Pandas**' and '**NumPy**'. Here are specific resources...

- [Pandas Documentation](#)
- [NumPy Tutorial Series](#)
- [Python Tutorials](#)
- [Resources](#)
- [AI zna Honors](#)

Context-Aware Chat  
Roboto Mono

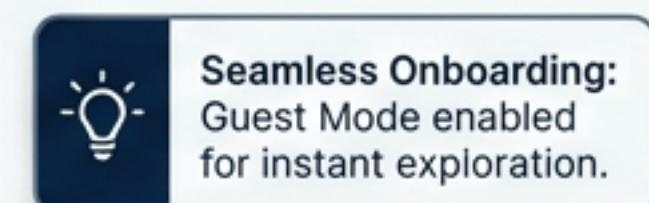
**Mock Interview Simulator**  
Generates role-specific questions.

Roboto Mono

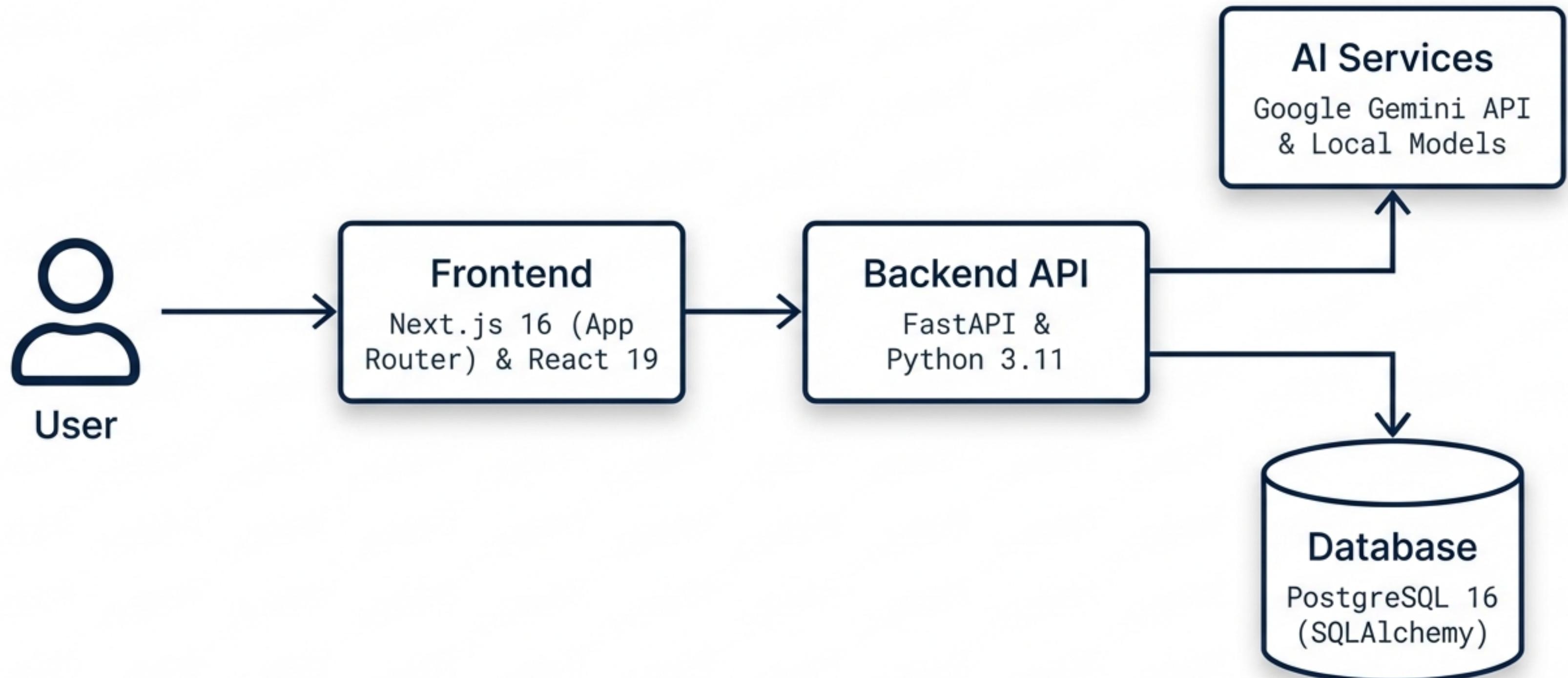
**Resume Optimizer**  
AI-powered bullet point rewriting.

Roboto Mono

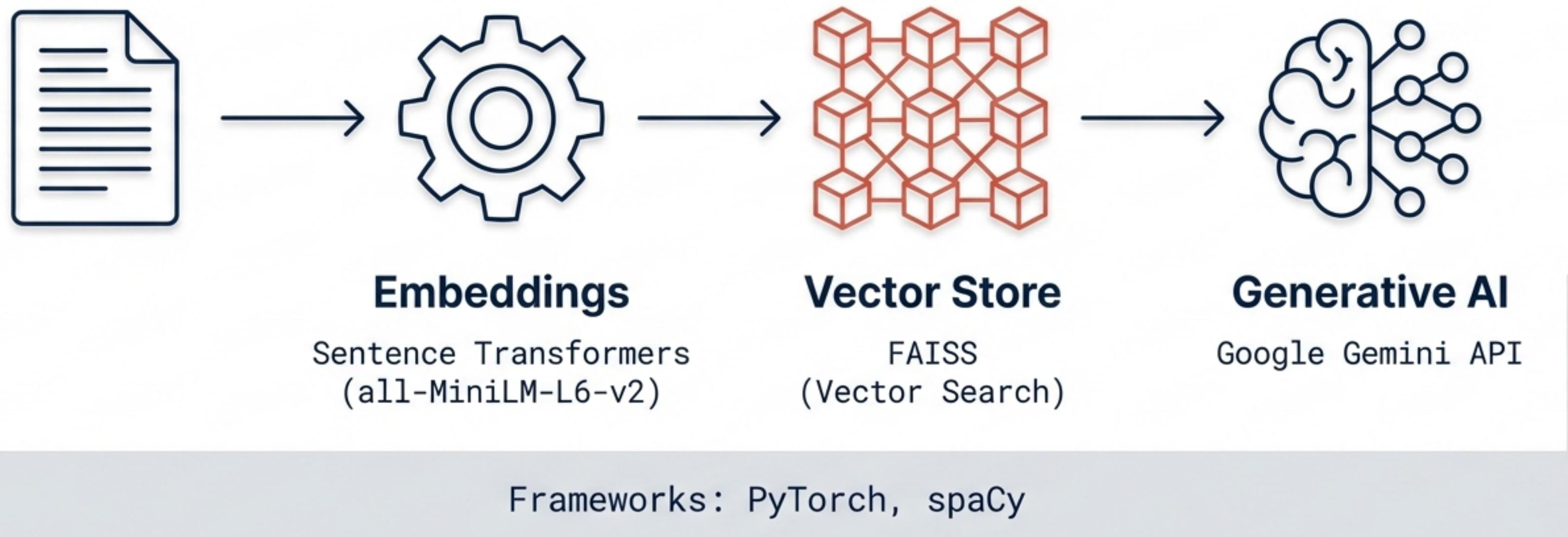
# Personalized Learning & Financial Planning



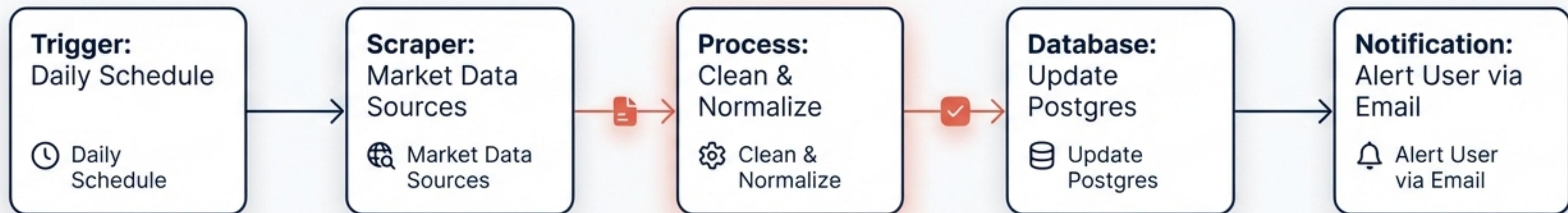
# High-Level System Architecture



# The AI & Machine Learning Engine



# Automation & Data Pipelines



Orchestrating resume ingestion, market updates, and notifications without manual intervention.

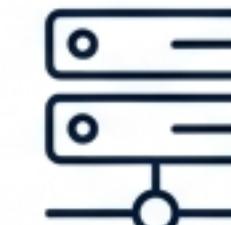
n8n

# Full Technology Stack



## Frontend

Next.js 16, React 19, TypeScript,  
Tailwind CSS, shadcn/ui



## Backend

Python 3.11, FastAPI,  
SQLAlchemy 2.0, Pydantic



## AI / ML

PyTorch, Sentence Transformers, FAISS, Gemini API



## Database

PostgreSQL 16

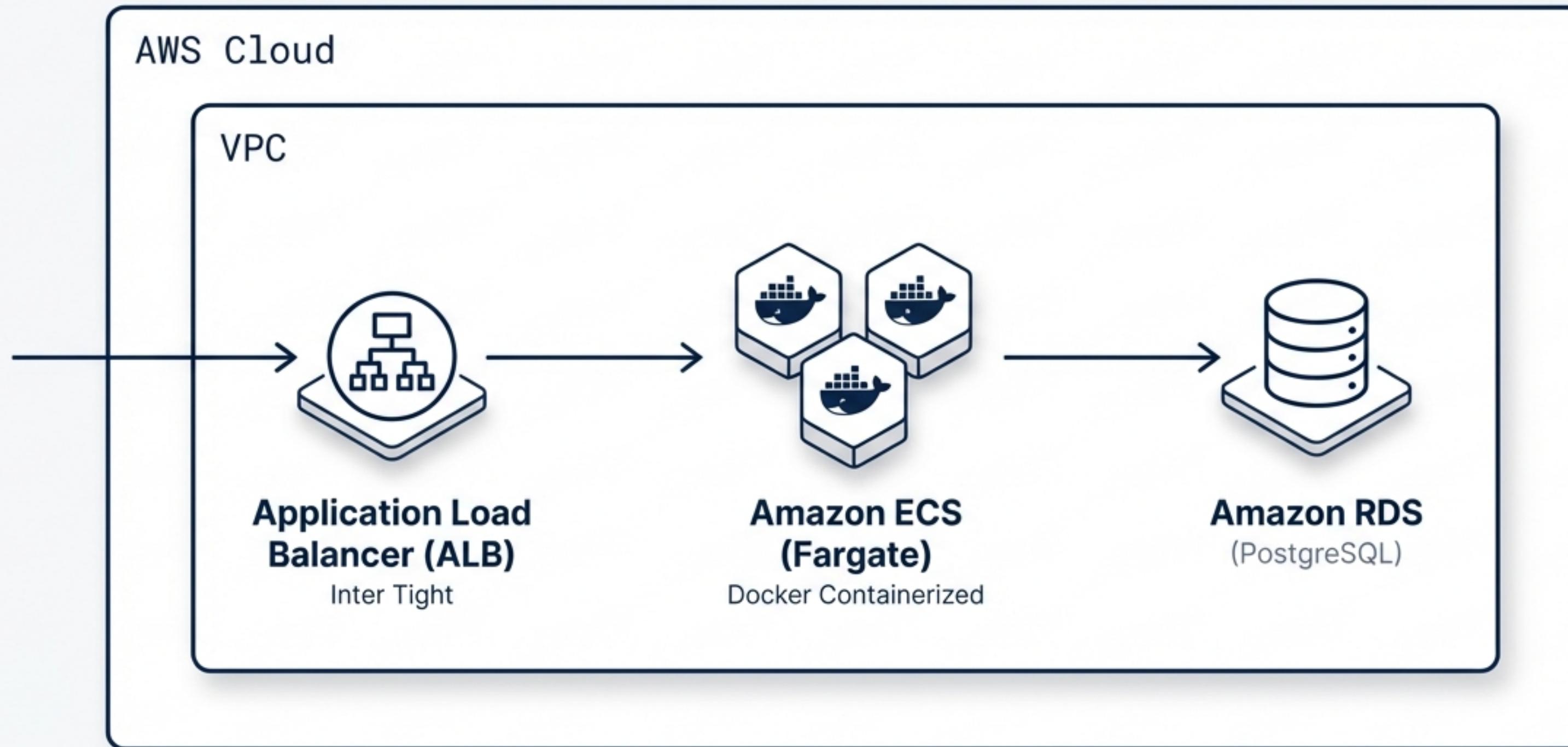


## DevOps & Infra

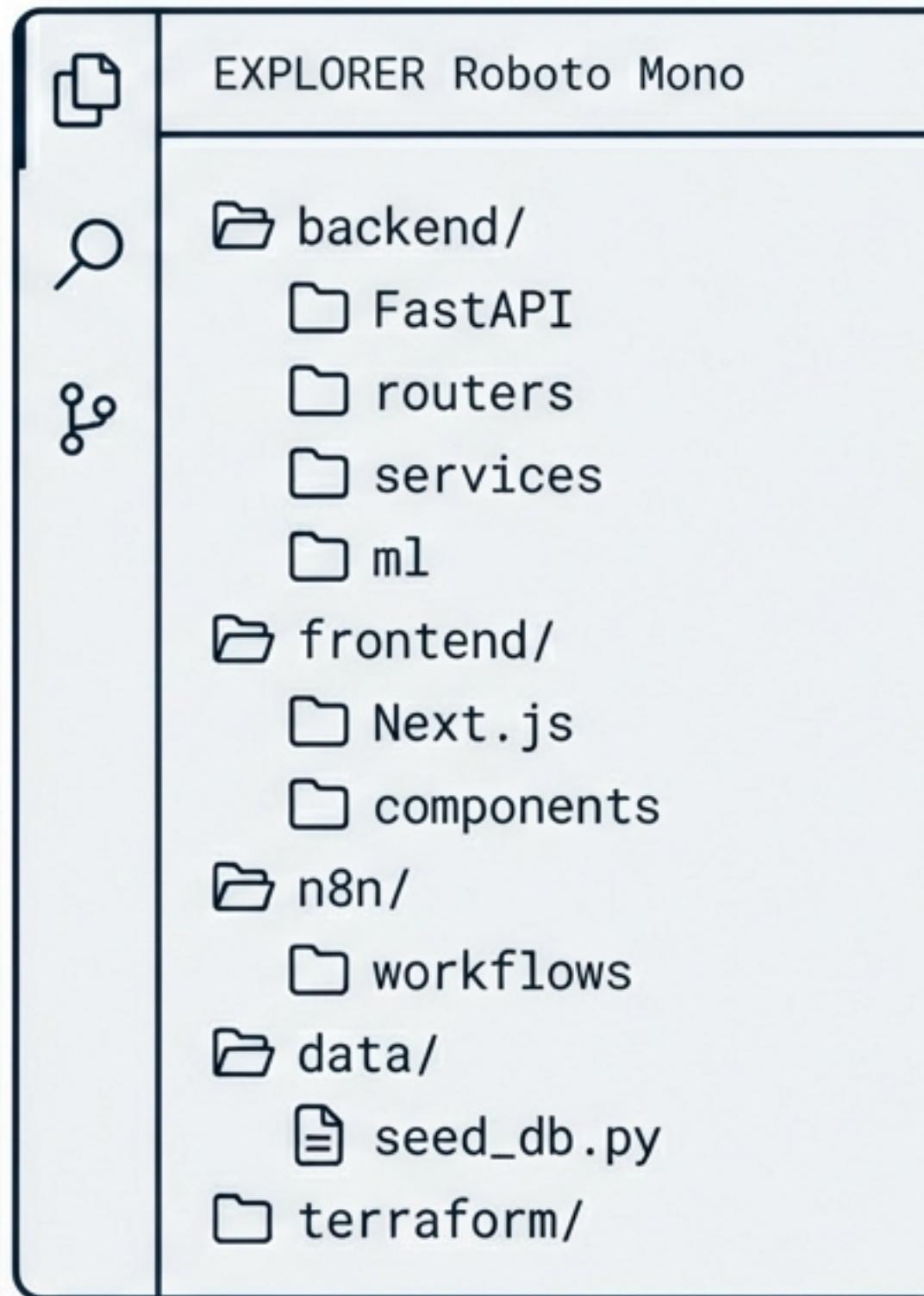
Docker, Shell Scripts, n8n

# Infrastructure & Cloud Deployment

Infrastructure as Code via Terraform



# Project Structure & Organization



**Clean separation of concerns with dedicated modules for ML logic, API services, and Frontend UI.**

Includes database seeding scripts for Singapore market data.

# Ready to Bridge the Gap

Empowering Singapore's workforce with AI-driven intelligence.



Scan to View Repository

## Terminal

```
git clone https://github.com/azniosman/dsai-capstone.git  
docker-compose up
```



Built for Singapore