

CreatorLink AI – Structured High-Level Architecture

This document outlines the structured, layered software architecture for the CreatorLink AI project. The architecture is designed to be beginner-friendly while following real-world engineering best practices.

High-Level System Overview

Users interact with a React-based frontend application. The frontend communicates with a FastAPI backend via HTTP/JSON. The backend orchestrates business logic, AI interactions, and data persistence. External services such as OpenAI and Instagram are accessed securely through backend services only.

Architecture Layers

- 1. Frontend Layer (React):** Handles UI rendering, user input, and displaying results. No business logic or secrets.
- 2. API Layer (FastAPI Routes):** Accepts requests, validates input, and delegates work to services.
- 3. Service Layer:** Contains business logic such as AI prompt generation, creator matching, and workflows.
- 4. Data Access Layer:** Uses repositories and ORM models to read/write data.
- 5. Data Layer:** Relational database storing creators, generated content, and metadata.
- 6. External Services:** OpenAI for generative AI features and Instagram for creator linking.

Design Principles

- Separation of concerns
- Security-first AI integration
- Maintainable and scalable structure
- Easy to explain and extend