

PROVISIONAL PATENT APPLICATION

Title: SYSTEM AND METHOD FOR A THREE-LAYER APPLIED ARTIFICIAL INTELLIGENCE SOFTWARE DEVELOPMENT LIFECYCLE

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ABSTRACT:

A unified software development lifecycle (SDLC) for applied artificial intelligence systems is provided.

The SDLC comprises three layers: a Data Layer for preparing enterprise data; an Insight Layer for orchestrated reasoning,

retrieval, and tool use; and a Conversation Layer for delivering insights to end-users. This layered architecture standardizes

design, construction, and deployment of AI systems by integrating data engineering, AI reasoning, and conversational user

interactions into a single lifecycle.

FIELD OF THE INVENTION:

The present invention relates to software engineering for artificial intelligence systems, specifically a unified,

three-layer SDLC for applied AI architecture.

BACKGROUND:

Existing AI systems are fragmented: MLOps handles model lifecycles, RAG manages retrieval, and chatbot frameworks manage

interactions. No unified SDLC exists that combines data engineering, reasoning/orchestration, and conversational delivery.

SUMMARY:

The invention introduces a formal SDLC consisting of three interconnected layers:

1. Data Layer (Data Substrate)
2. Insight Layer (Insight Engine)
3. Conversation Layer (Experience Layer)

The invention defines boundaries, responsibilities, flows, and interfaces between the layers.

DETAILED DESCRIPTION:

Layer 1 — Data Layer:

Responsible for ingestion, normalization, canonicalization, chunking, vector embedding, metadata generation,
and governance management.

Layer 2 — Insight Layer:

A novel SDLC layer responsible for retrieval, ranking, tool routing, function calling, memory, policy enforcement,
reasoning, and generation of a structured Insight Object.

Layer 3 — Conversation Layer:

Handles multi-modal delivery, conversational feedback loops, UX flows, and human-in-the-loop validation.

CLAIMS:

1. A software development lifecycle comprising a Data Layer, an Insight Layer, and a Conversation Layer...

(Additional claims can be appended during full patent filing.)

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