LlamaIndex Built the Data Framework for LLM Applications. The Data Objects Have No Agent Schema.

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LlamaIndex provides a data framework for connecting LLM applications to external data through indexing, retrieval, and agent abstractions. The framework excels at making data accessible to language models. But LlamaIndex agents are assembled from query engines, tools, and chat memory without a canonical schema. There is no structural definition of what an agent is beyond its assembled components. The gap is between excellent data integration tooling and canonical agent definition.

LlamaIndex's data indexing and retrieval framework provides essential infrastructure for LLM applications. The gap described here is about agent structural definition.

Agents assembled from components, not structurally defined

A LlamaIndex agent combines a language model, a set of query engine tools, and optional chat memory. The agent is capable. But it has no canonical schema. Different agents can have entirely different structures. There is no requirement for governance fields, no typed identity, and no lineage tracking. The agent is what its components happen to be.

Chat memory without governed persistence

LlamaIndex provides chat memory modules for maintaining conversation context. Memory is a useful feature. But it is an optional component, not a required typed field. Memory has no governance constraints, no lineage, and no structural relationship to the agent's identity or governance. It is a conversation buffer, not governed memory.

What a canonical agent schema provides

A canonical agent schema would give LlamaIndex agents structural definition. Memory would be a required typed field with lineage. Governance would be intrinsic to the agent. Identity would persist across sessions. LlamaIndex's data integration would provide the retrieval capability. The schema would provide the structural definition that makes agents validatable and interoperable.

Agent Schema All 21 steps →

Define what an autonomous agent is — structurally.

Patent
US 19/452,651 · filed
Primary Technical Disclosure
○ Cognition-Compatible Semantic Agent Objects and Structural Validation
Secondary Technical
○ Partial Agent Structural Validity: Fewer Fields, Still Deterministic○ Minimum Two-Field Validation Threshold: The Floor of Semantic Structure○ Field Interaction Rules: Deterministic Constraints Between Canonical Fields○ Field-Based Role Typing: Agent Roles Derived From Structural Composition○ Semantic Templates: Predefined Field Arrangements as Agent Class Contracts○ Structural Scaffolding Logic: Resolving Missing Fields Through Inference or Defaulting○ Field-Aware Default Resolution: Deterministic Behavior When Fields Are Absent○ Traceable Semantic Lineage Graph: Mutation History Embedded in Agent Objects○ Serialization With Stateless Compatibility: Reconstruction Without External Session State○ Schema Governance Through Versioned Policies: Cross-Version Structural Interoperability
Applications (General)
○ Enterprise AI Agent Interoperability Through Canonical Schema○ Robotic System Standardization via Structural Field Composition○ Multi-Vendor AI Agent Interoperability○ Digital Twin Standardization Through Canonical Fields○ Healthcare AI Agent Portability○ Defense Coalition Interoperability○ Insurance Claims Processing Through Standard Agents○ Legacy System Integration via Schema Bridging
Applications (Specific)
○ LangChain Built the Agent Framework. It Did Not Define What an Agent Is.○ AutoGen Enabled Multi-Agent Conversations. The Agents Have No Structural Definition.○ CrewAI Organized Agents Into Teams. The Agents Still Have No Schema.○ Semantic Kernel Integrated AI Into Enterprise Code. The Agents It Creates Have No Schema.○ OpenAI Assistants API Provides Agent Tooling. It Does Not Define Agent Structure.○ Google Vertex AI Agents Provide Managed Agent Infrastructure. The Agents Have No Canonical Schema.○ Amazon Bedrock Agents Orchestrate Foundation Models. The Agents Have No Structural Definition.○ Haystack Built Composable NLP Pipelines. The Pipeline Components Have No Agent Schema.● LlamaIndex Built the Data Framework for LLM Applications. The Data Objects Have No Agent Schema.○ Dify Made LLM Application Development Visual. The Applications Have No Agent Schema.
Agent Schema overview →
AQ
deterministic
autonomy

Legal

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