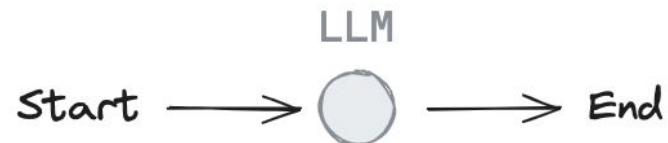




LangChain Academy

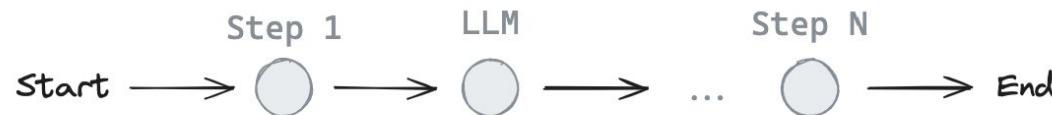
Introduction to  LangGraph

A solitary language model is fairly limited...



... e.g., access to tools, external context, multi-step workflows.

So, many LLM applications use a control flow ...



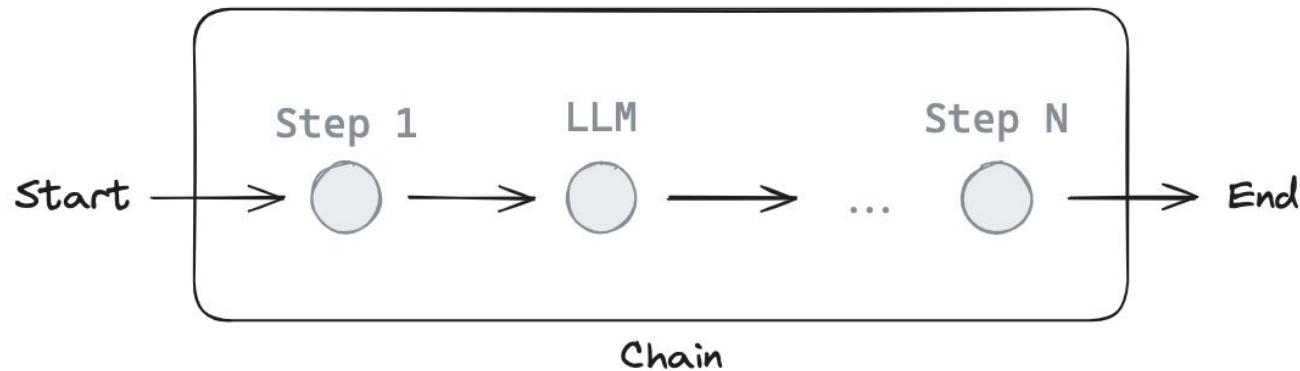
... with steps pre / post-LLM call (tool calls, retrieval, etc).

Reference:

https://en.wikipedia.org/wiki/Control_flow

<https://github.com/langchain-ai/rag-from-scratch>

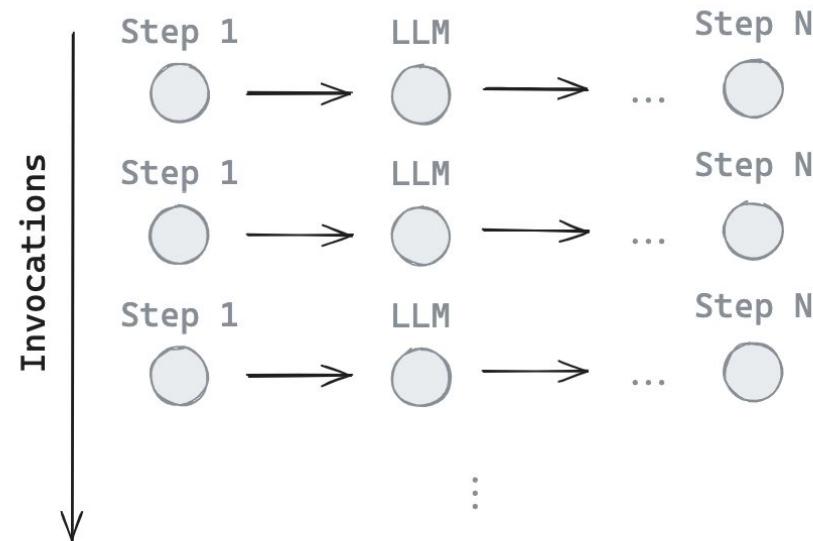
This control flow forms a “chain”



Reference:

https://en.wikipedia.org/wiki/Control_flow
<https://blog.langchain.dev/what-is-an-agent/>

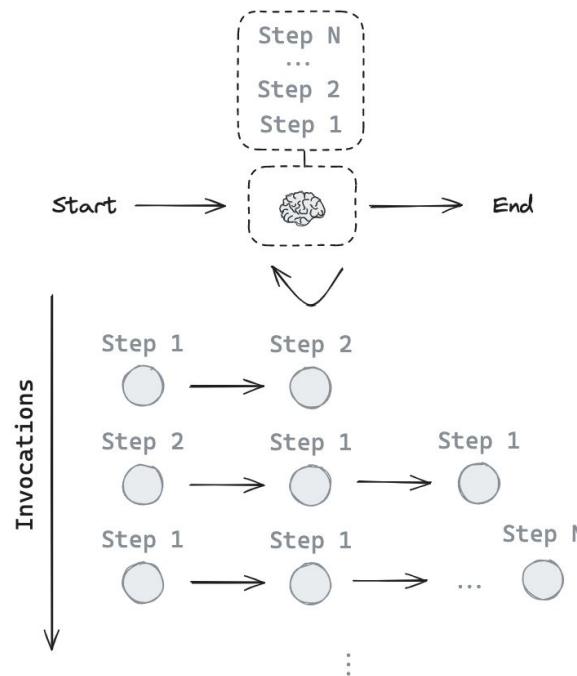
Chains are reliable! Same control flow every time.



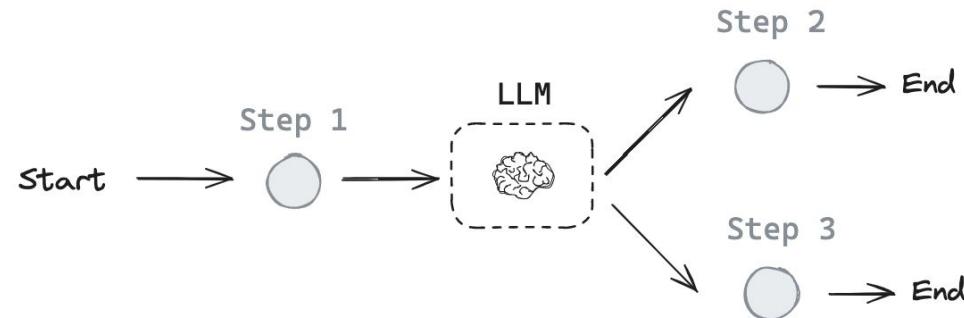
Reference:

https://en.wikipedia.org/wiki/Control_flow
<https://blog.langchain.dev/what-is-an-agent/>

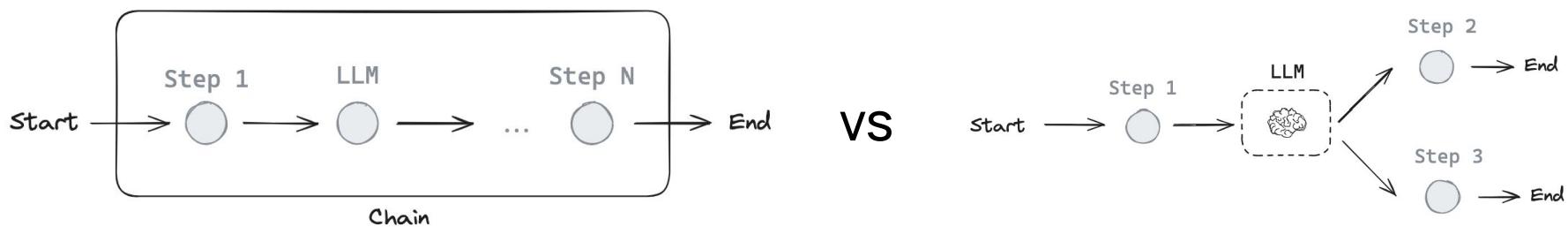
But, we want LLM systems that can pick their own control flow!



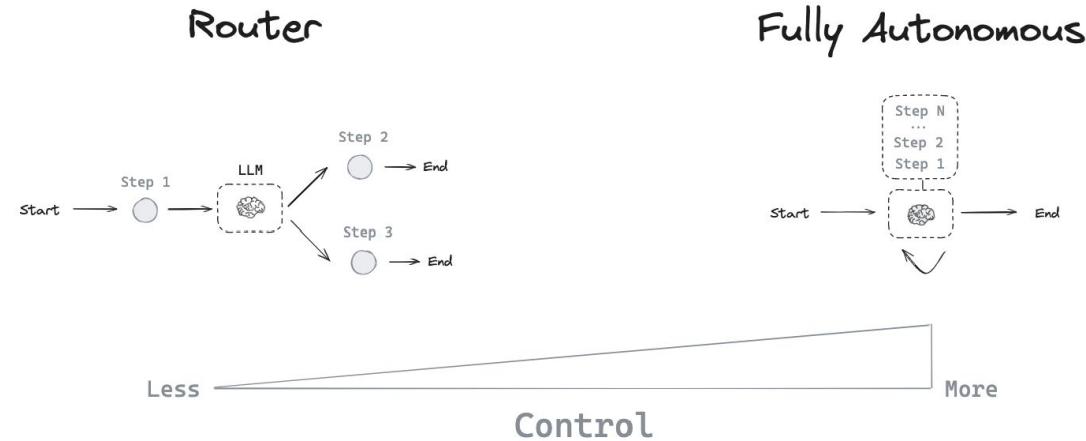
Agent ~= control flow defined by an LLM



Fixed vs LLM-defined control flow



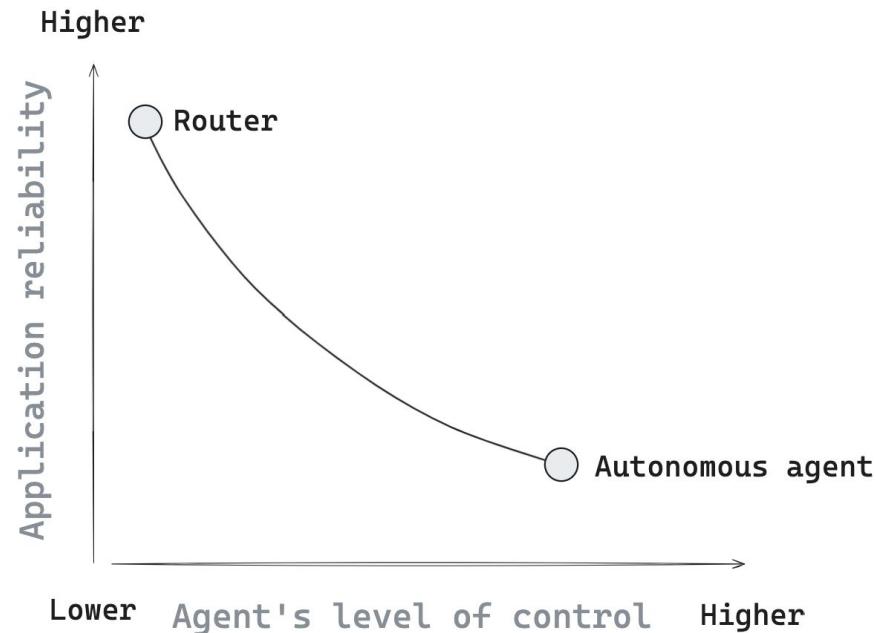
Many kinds of agents!



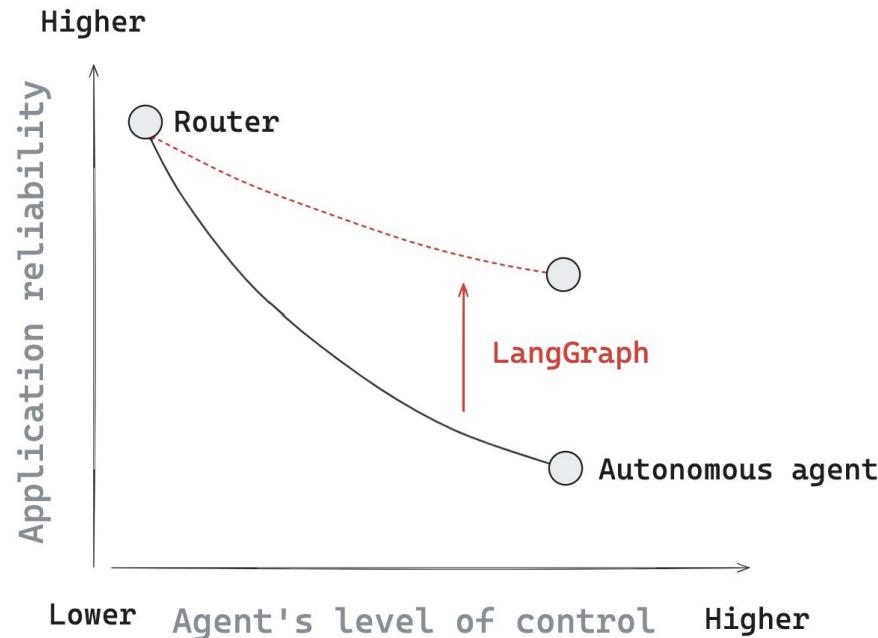
Reference:

<https://blog.langchain.dev/what-is-a-cognitive-architecture/>
<https://x.com/AndrewYNg/status/1801295202788983136>

But, practical challenges.



LangGraph helps you bend the reliability curve





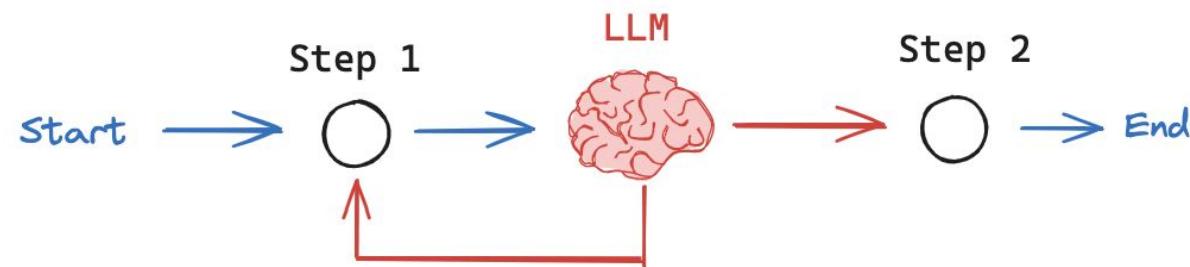
LangGraph

Balance reliability with control

Intuition: Let developer set parts of control flow (reliable)

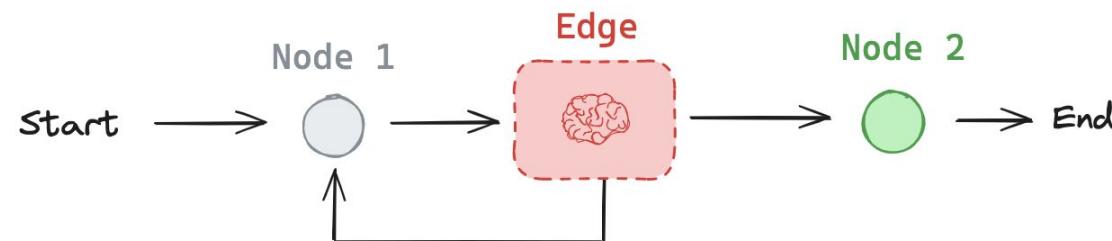


Intuition: Inject LLM to make it an agent (control)

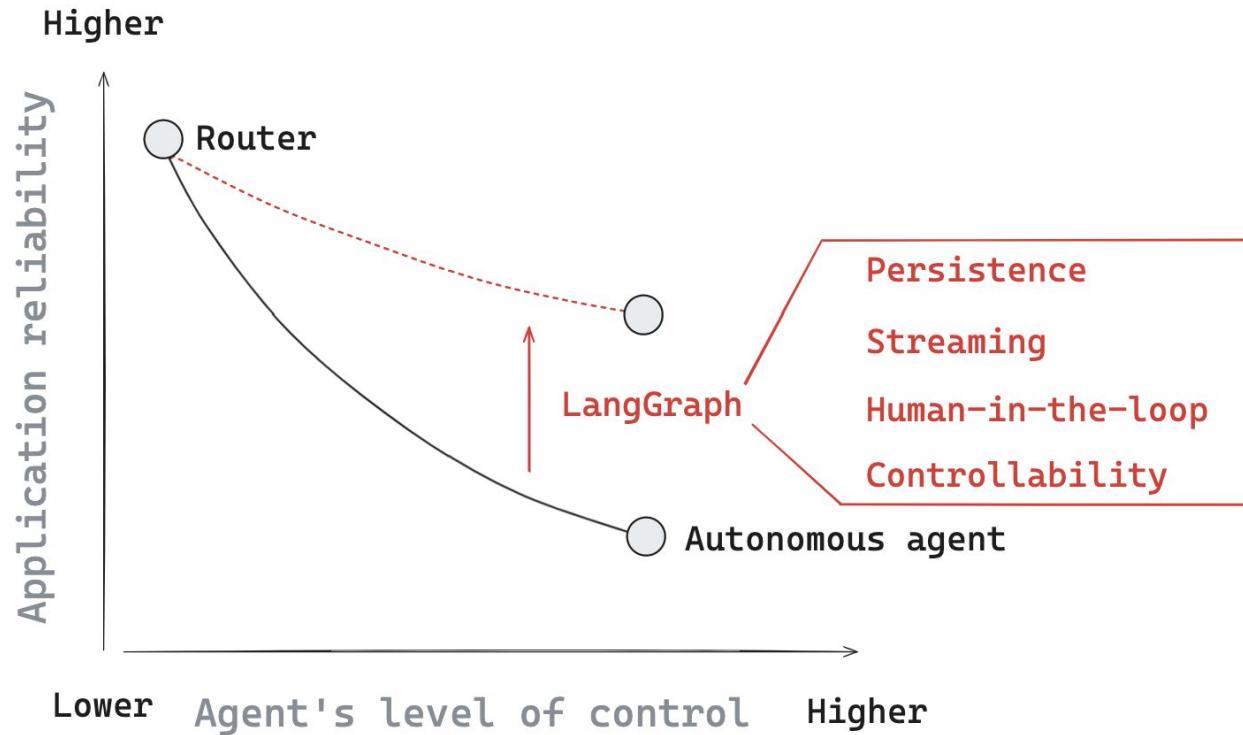




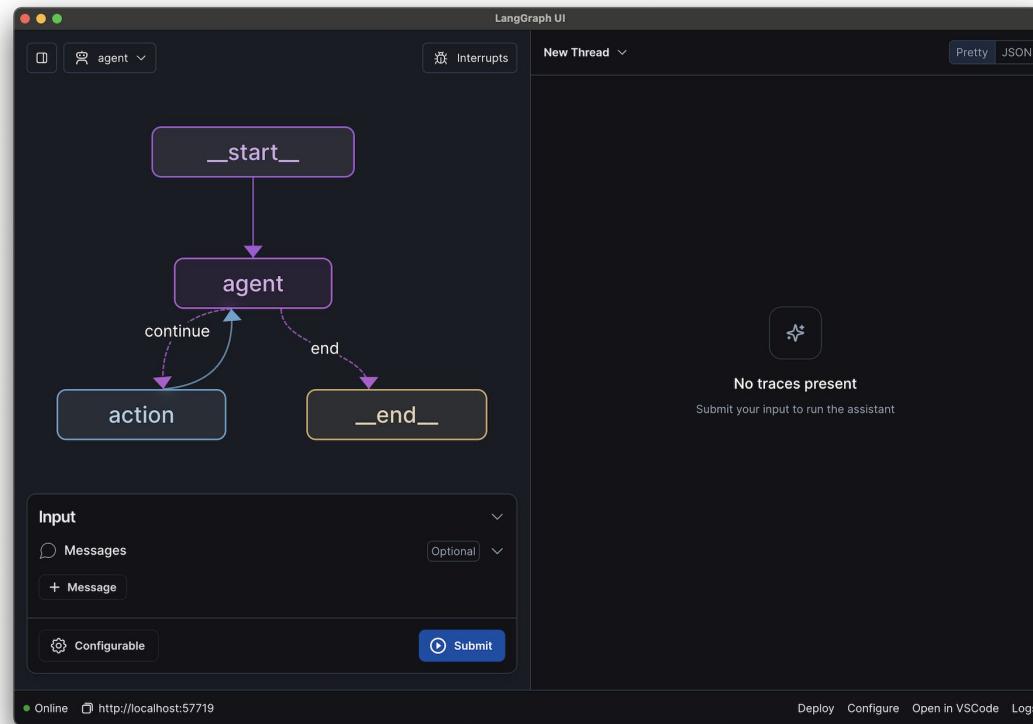
LangGraph Express custom control flows as graphs



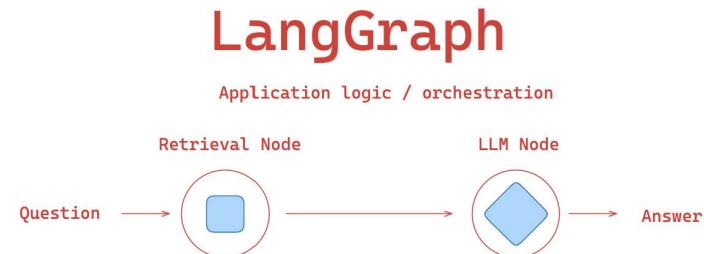
Pillars



IDE: LangGraph Studio



LangGraph LangChain

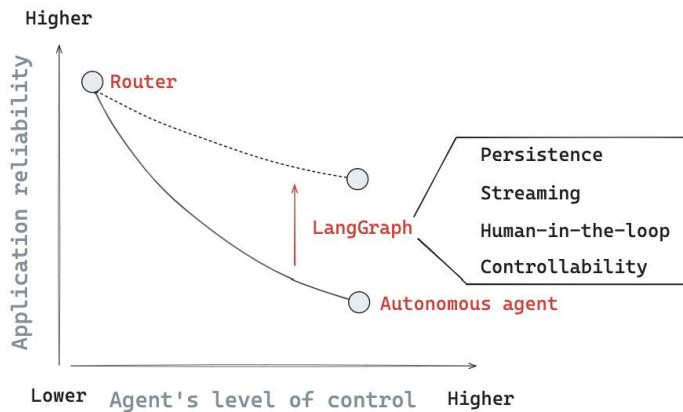


LangChain

Application components (e.g., integrations)

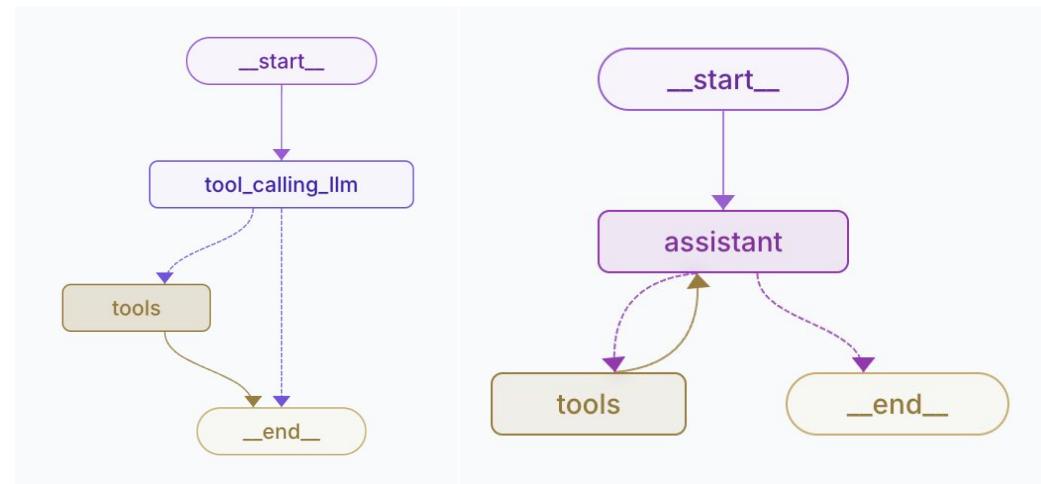


Module 1: LangGraph Studio, router, agent w/ memory

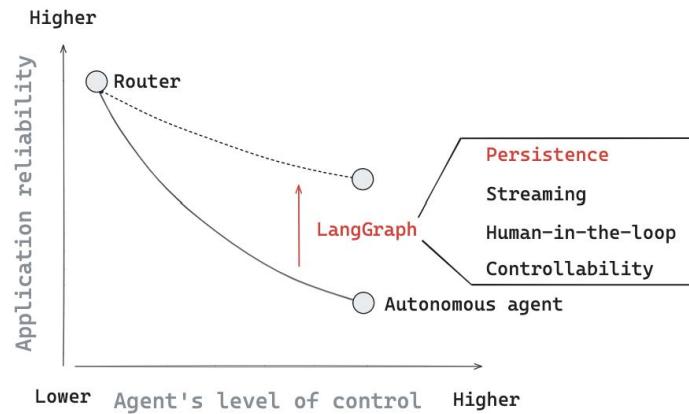


Router

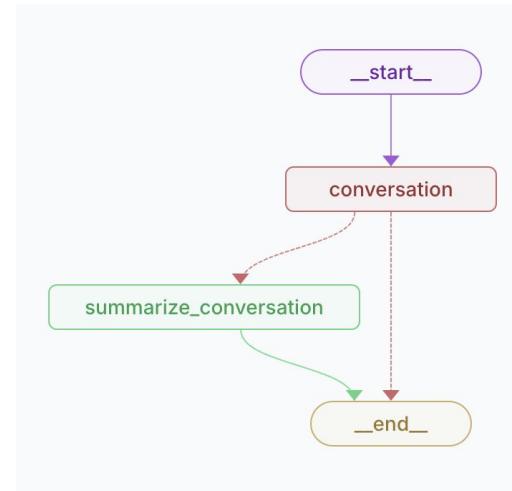
General tool-calling agent



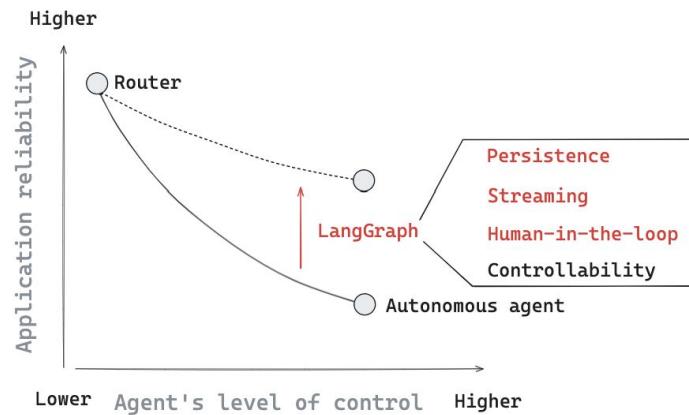
Module 2: Memory, long-running chatbot



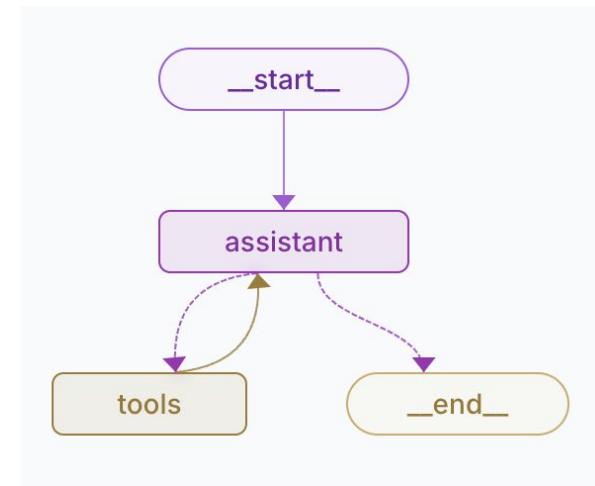
Chatbot w/ memory



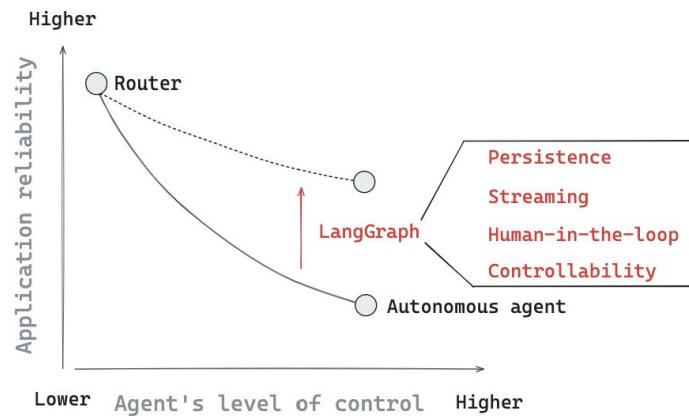
Module 3: Streaming, human-in-the-loop



Agent w/ human-in-the-loop



Module 4: Human-in-the-loop, parallelization, customization



Custom research assistant

