

AGENT ENGINEERING

Your first agent

Hai

What's on the menu today?

1. What makes an AI Agent
2. Tool Use
3. Context Management
4. Multi vs Sequential Agents
5. Recommended Stack
6. Homework

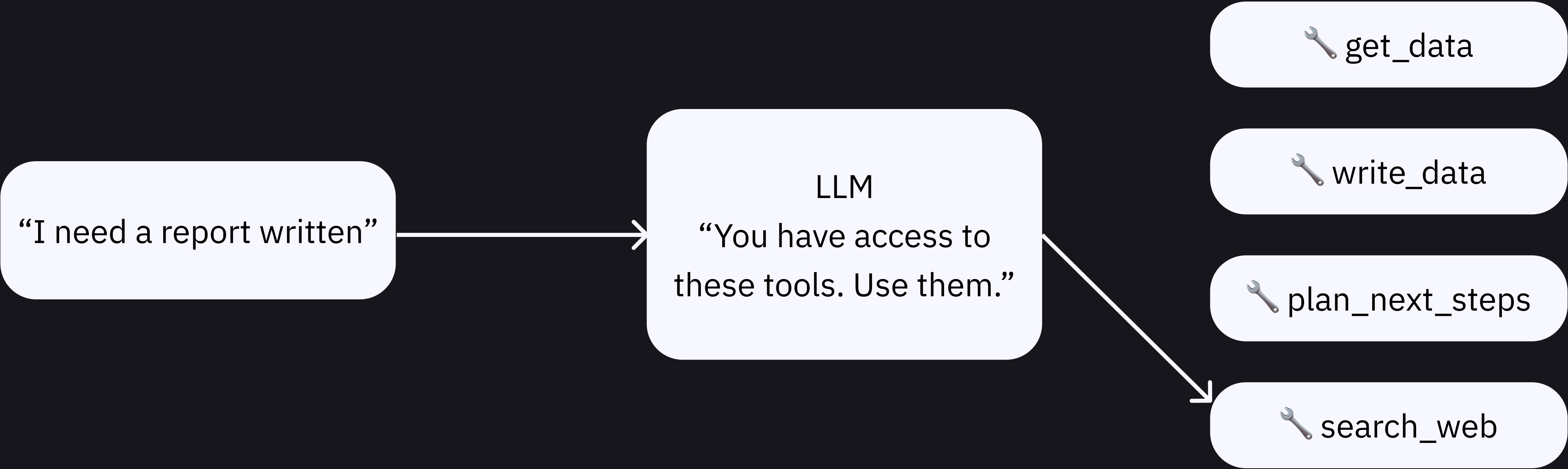
WHAT MAKES AN AI AGENT

“

LLM agents observe their current state (including environmental input and chat history), think through the best action using internal reasoning or explicit thinking processes to implement their strategy, and then act by generating text, calling tools, or executing commands.

—HAI (ME OBVIOUSLY)

TOOL USE



Context Mgnt. is the most important job of agent engineering

This sets your agent apart.

“

“Prompt engineering” was coined as a term for the effort needing to write your task in the ideal format for a LLM chatbot. “Context engineering” is the next level of this.

— WALDEN YAN @ COGNITION

MULTI VS SEQUENTIAL AGENTS

“

Multi-agent systems that primarily “read” are easier than those that “write”.

—HARRISON CHASE, CEO @ LANGCHAIN

MULTI-AGENT (SEQUENTIAL)

1. Easier context management
2. Easier debugging
3. Easier for write-heavy tasks

MULTI-AGENT WITH PARALLELISM

1. Scalability
2. Faster execution
3. Better for read-heavy tasks

Multi-agent researcher

Multiple agents work simultaneously

Loops back if more research needed

Persistent context and results

Lead researcher orchestrates entire process

- ✓ Plan & Context
- ✓ Parallel Research
- ✓ Synthesize Results
- ✓ Auto-Citation
- ✓ Deliver Report

High-level Architecture of Advanced Research

Claude.ai chat



What's on your mind tonight?

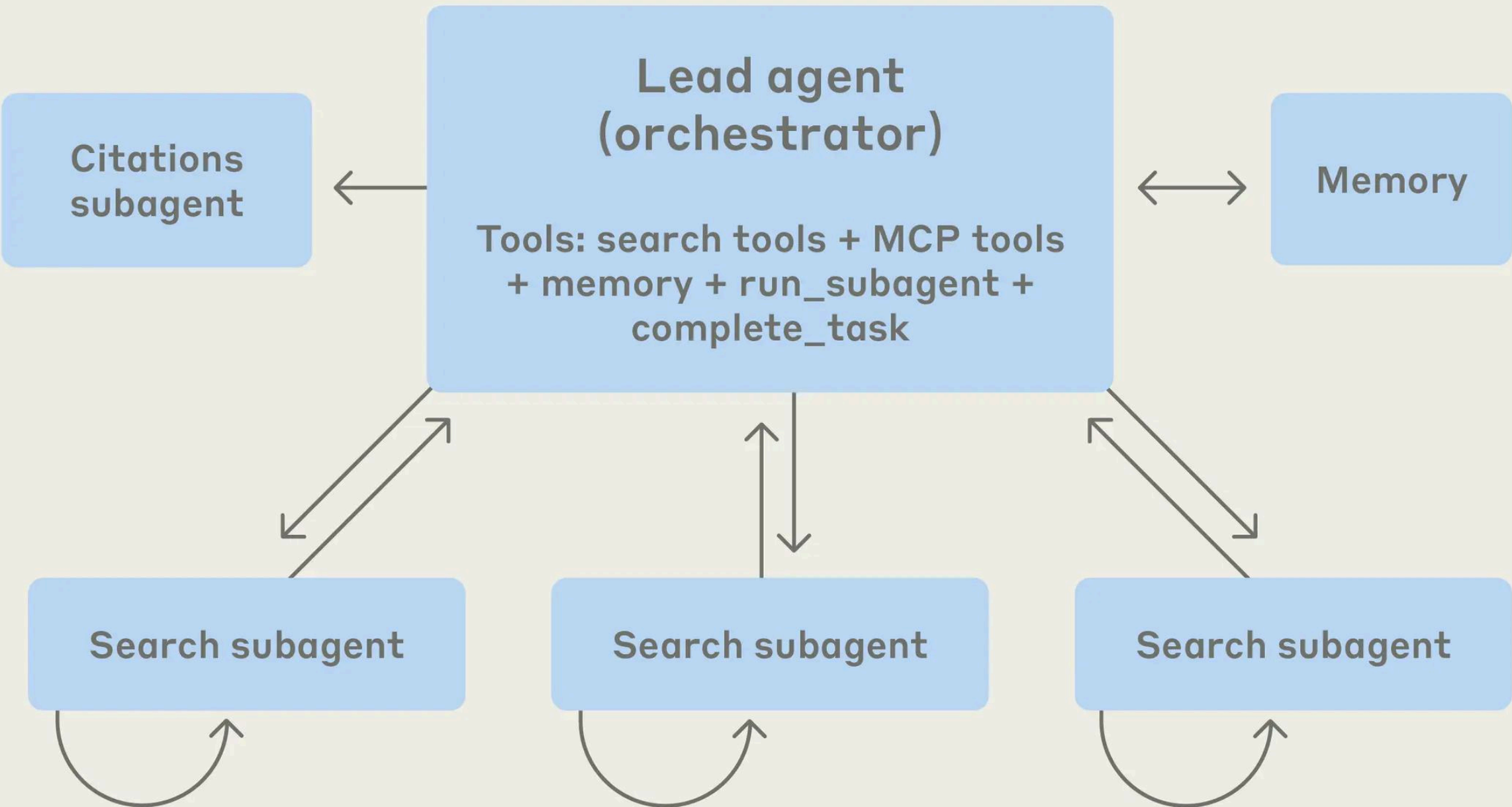


what are all the companies in the united states working on AI agents in 2025? make a list of at least 100. for each company, include the name, website, product, description of what they do, type of agents they build, and their vertical/industry.

User request

Final report

Multi-agent research system



TYPESCRIPT

For everyone:

- [OpenAI Agents SDK](#) (TS)
- AI SDK

For Advanced Developers:

- [LangGraph](#) (TS)

For multi-agent:

- [OpenAI Agents SDK](#) (TS)
- [Mastra](#)

PYTHON

For Everyone:

- [OpenAI Agents SDK](#) (python)

For Advanced Developers:

- LangGraph (Python)

For multi-agent:

- [OpenAI Agents SDK](#) (python)

RESOURCES

Additional resources to read

This expands on the topics we talked about today

[12-factor agents](#) (HumanLayer)

[How and when to build multi-agent systems](#) (LangChain)

[Building effective agents](#)
(Anthropic)

[How we built our multi-agent research system](#) (Anthropic)

[Example multi-agent prompts](#)
(Anthropic)

[Don't Build Multi-Agents](#) (Walden Yang - Cognition)

[Sample Project: OpenAI Agents SDK with Next.js UI and Python backend](#) (OpenAI)

Homework this week

1. Build an agent that can do 2 things.
2. One of those things can be to retrieve documents from your RAG source (e.g Vectorize)

FINAL

Q&A