

AGENT ENGINEERING

# Agent Engineering

# 101

Hai

# What's on the menu today?

1. The landscape of things
2. Agents vs Workflows
3. Prompt engineering
4. Recommended tech stack
5. Who's hiring whom?

# We've come a long way

In just 2.5 years.

- ✓ Text Completion
- ✓ Conversational Chat
- ✓ Instruction Following
- ✓ Image Generation / Understanding
- AI Agent as a Computer Interface

“

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 policy strategy, and then act by generating text, calling tools, or executing commands. This cycle continuously repeats as the agent updates its memory and makes new decisions based on action outcomes.

—HAI (ME OBVIOUSLY)

# Why agents?

Sometimes you need them, and there's a spectrum.



**The value of the AI product is in the value of the AI leverage on your effort**

Doesn't matter how agentic – just increase ratio of **human input : (valuable) ai output**

- 1 : 0.5 (Copilot)
- 1 : 1 (ChatGPT)
- 1 : 10 (O-series, Reasoners, Simple Agents/Workflows)
- 1 : 10000 (Deep Research, NotebookLM)

## AGENT

**LLMs operate independently using tools in feedback loops**

## WORKFLOW

**Prompt Chaining** - Sequential steps where each LLM processes previous output.

**Routing** - Classifies inputs and directs to specialized tasks.

**Parallelization** - Multiple LLMs work simultaneously via sectioning or voting.

**Orchestrator-Workers** - Central LLM delegates tasks to worker LLMs.

**Evaluator-Optimizer** - One LLM generates, another evaluates in feedback loops.

## AGENT

### Pros

- Direct themselves dynamically
- Flexible and adaptive
- Handle sophisticated tasks
- Good for open-ended problems
- Autonomous decision-making

### Cons

- Higher costs and latency
- More complex to implement
- Potential for compounding errors
- Require extensive testing

## WORKFLOW

### Pros

- Use predefined paths
- Consistent and predictable
- Simpler to debug
- Predictable resource usage
- Good for decomposable tasks

### Cons

- Less flexible
- Fixed execution paths
- Limited adaptability
- Can't handle unexpected scenarios

Question for you: when  
should we build agents vs  
workflows?



“

In 2025, the models out there are extremely intelligent. But even the smartest human won't be able to do their job effectively without the context of what they're being asked to do. "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

prompt engineering should be called  
**context engineering** when talking about agents

## TYPESCRIPT

### For everyone

- [Next.js](#) (front + backend)
- [v0](#) (vibe designing frontend)
- [shadcn](#) (UI components)
- [Vercel](#) (Hosting)

### For most people

- [AI SDK](#) ([agent](#) or [LLM calls](#))
- [OpenAI Agents SDK](#) ([TS](#))

### For advanced people

- [Mastra](#)
- [LangGraph](#) (TS)
- [Figma Make](#)

## PYTHON

### For everyone

- [uv](#)
- [Streamlit](#) (front + backend)

### For most people

- [LiteLLM](#) / [OpenRouter](#)
- [OpenAI Agents SDK](#) ([python](#))

### For advanced people

- [LangGraph](#) ([python](#))

### If you want a nice frontend

- [FastAPI](#)
- [Next.js](#) (just for frontend, no API routes)
- [v0](#)

WHO'S HIRING WHOM?

SaaS agent startups want product engineers.

The space is new so create awesome things and you'll be noticed.

Deets of the job

- no junior engineers
- fullstack, ideally nextjs experience
- built/interested in ai projects

move to SF requirement yes?

Yeah but that doesn't have to be right away, I would lead that part out

Hard finding actual good AI engineers, the guy we tried from cruise wasn't cool enough

Fri, Jan 10 at 4:27 PM

There's a founder (from Ottawa, but based in Palo Alto) (was at Meta) (name is Luc Levesque) who's asking around for who's the best engineers doing agentic work. Can I connect him with you?

Fri, Jan 10 at 5:36 PM

Yeah, for sure, I'd be interested in meeting him

Are you still looking for AI engineers in Ottawa? Have an ex-Deepmind guy just moved back home here looking for work if you want me to connect

Hai Nghiem

Sent with [Notion Mail](#)

...

Reply

Forward

To me

Mar 20

Yes! Would love an intro

## RESOURCES

# Additional resources to read

This expands on the topics we talked about today

[Agents are workflows \(Han Lee\)](#)

[AI Engineer World's Fair 2025 opening](#)

[OpenAI defines agents \(AI Eng. WF '25\)](#)

[NY to track AI-related layoffs](#)

[Building effective agents \(Anthropic\)](#)

[AI Engineering roles job board from Jason Liu](#)

Get a head start and do these things now!

1. Install Cursor. Create your first project using this guide.
2. Add the bootcamp MCP server to Cursor (AI onboarding buddy!)
3. Tell Cursor Agent that you want to onboard for the bootcamp
4. Build your first LLM call to a model of choice!

\*In case the MCP server doesn't work, here's the manual setup guide

FINAL

Q&A / demonstration