

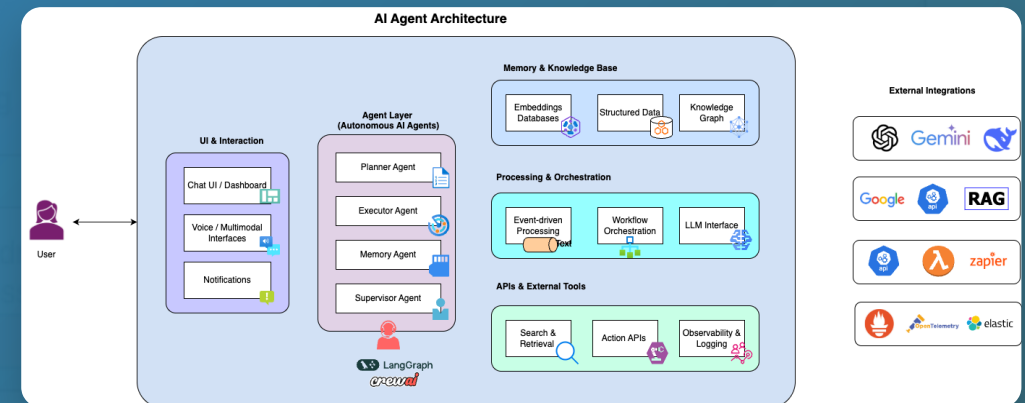
Guide for Building AI Agents

A Comprehensive Roadmap to Mastering AI Agent Development








Some links may change with time, if a link becomes broken simply copy the name and search for it in the corresponding platform

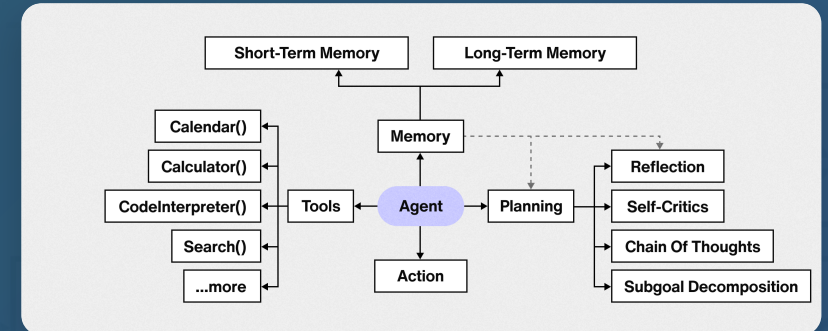
What Are AI Agents?

- ✨ Autonomous systems that perceive, reason, and act to achieve goals
- 🧠 Can make decisions, learn from experience, and adapt to new situations
- 📈 Increasingly vital in automating complex tasks across industries
- 🏠 Foundation for next-generation AI applications like virtual assistants and autonomous systems



AI Agent Components & Architecture

-  **Agent Architecture** Outlines how the agent reasons and responds
-  **Environment Interface** Connects agents to their operational context
-  **Task Management** Drives the workflow logic and assigns tasks
-  **Communication Protocols** Enables structured agent-to-agent interaction
-  **Memory Systems** Stores relevant context or facts for consistent actions
-  **Tool Access** Gives agents the ability to take meaningful actions
-  **Monitoring & Debugging** Provides visibility to troubleshoot behavior



Roadmap for Learning AI Agents



Months 1-2: Foundation Building

- Mathematics & Statistics (linear algebra, calculus, probability)
- Python Programming (basics, data manipulation, visualization)
- Introduction to AI Concepts



Months 3-4: Programming & Data Skills

- Object-Oriented Programming (OOP)
- Version Control with Git
- Data Cleaning & Feature Engineering



Months 5-6: Machine Learning Fundamentals

- Supervised Learning (regression, classification)
- Unsupervised Learning (clustering, dimensionality reduction)
- Model Evaluation & Optimization



Months 7-8: Deep Learning & Neural Networks

- Convolutional Neural Networks (CNNs)
- Recurrent Neural Networks (RNNs)
- Transfer Learning



Months 9-10: AI Agents & LLMs

- Large Language Models (LLMs)
- Agent Design Patterns
- Multi-Agent Systems



Months 11-12: Advanced Applications

- Building & Deploying AI Agents
- Real-World Projects
- Career Development

Free Resources for Learning AI Agents



Books & Documentation

Building AI Agents: A Practical Guide

OpenAI PDF Guide

AI Agent Frameworks: A Practical Guide

Salesforce Guide

More books at 10xdev.blog Library

techidiaries.com



YouTube Courses

AI Agents for Beginners

Microsoft Learn

Building AI Agents In 44 Minutes

YouTube Tutorial

AI Agents Fundamentals In 21 Minutes

Quick Overview



Free Courses with Certificates

AI Agent Course

Salesforce Training


Understanding Agentic AI

Agent Academy

Getting Started with Agentic AI

Great Learning

AI Agent Frameworks & Tools

 Botpress	Teams building AI agents with tool connections	<ul style="list-style-type: none"> • Visual workflow builder • Built-in integrations • Multi-platform deployment
 LangChain	Developers building custom AI agents	<ul style="list-style-type: none"> • Modular components • Full developer control • Extensive integrations
 CrewAI	Prototyping multi-agent systems	<ul style="list-style-type: none"> • Role-based agent setup • Sequential/parallel execution • Shared crew memory
 Microsoft Semantic Kernel	Enterprise AI solutions	<ul style="list-style-type: none"> • Microsoft ecosystem integration • Planners • Skills
 AutoGen	Multi-agent conversations	<ul style="list-style-type: none"> • Conversable agents • Auto-reply • Code execution
 AutoGPT	Autonomous task completion	<ul style="list-style-type: none"> • Self-prompting • Memory management • Internet access
 RASA	Conversational AI agents	<ul style="list-style-type: none"> • NLU capabilities • Dialogue management • Open source

Common AI Agent Frameworks productcompass.pm

No-code	Framework	LLM	MCP	Tools (Functions everywhere)	Agents Orchestration
✗	OpenAI Agents API	OpenAI	✓ Remote	Predefined (web, file/code)	Threads
✗	Google Vertex AI	*	✓ Remote	Predefined (search, vision, etc.)	Flow-based, native A2A
✗	Anthropic Agents API	*	✓ Remote	Predefined (web, file/code)	Tool-calling only
✗	Microsoft AutoGen	*	✓ Local, Remote	Predefined (REPL, code)	Programmatic chaining
✓	Autogen Studio	*	✓ Local, Remote	Predefined	Visual agent chaining
✗	LangGraph	*	✓ Local, Remote	LangChain Functions	Graph (DAG)-based flow
✗	LangChain	*	✓ Local, Remote	Functions (custom-defined)	Manual (chains/agents)
✗	CrewAI	*	✓ Local, Remote	Predefined, 40+ integrations	Flow- and role-based
✓	n8n	*	✓ Local, Remote	Predefined, 100+ Integrations	Workflows, sub-workfl.
✓	Make	*	⚠ Limited	Predefined, 100+ Integrations	Scenarios, sub-scenarios



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Thank You!