

AI+ Context Engineering Practitioner™ Training

Course Duration: 8 Hours

TOC

Module 1: Foundations of Context Engineering – Introduction

- 1.1 What is Context Engineering (Beyond Prompt Engineering)
- 1.2 From Prompting to Context Pipelines: The 2025 Paradigm Shift
- 1.3 The Four Building Blocks of Context: Instructions, Knowledge, Tools, State
- 1.4 Short-Term vs Long-Term Memory in LLM Systems
- 1.5 Benefits of Context Engineering: Grounding, Relevance, Continuity, Cost Control
- 1.6 Use Case: Context-Aware AI Travel Assistant
- 1.7 Hands-on: Designing System Instructions and Memory State for a Role-Based AI Agent

Module 2: Context Management Patterns & Techniques

- 2.1 The W-S-C-I Framework: Write, Select, Compress, Isolate
- 2.2 WRITE Strategy: Agent Identity, Persona, Guardrails, and State
- 2.3 SELECT Strategy: Precision Retrieval & Metadata Filtering
- 2.4 COMPRESS Strategy: Summarization, Token Optimization, Auto-Compaction
- 2.5 ISOLATE Strategy: Context Boundaries, Safety, and Focus
- 2.6 Advanced Retrieval Patterns: Hybrid Search, Semantic Chunking
- 2.7 Case Study: ChatGPT & Claude Memory Systems
- 2.8 Hands-on: Implement Context Selection & Compression Using LangChain / LlamaIndex

Module 3: Context Pipelines, RAG & Grounding Architecture

- 3.1 The End-to-End Context Pipeline (Input → Retrieval → Compression → Assembly → Response → Update)
- 3.2 Retrieval-Augmented Generation (RAG) Architecture Deep Dive
- 3.3 Vector Databases: Pinecone, Chroma & Embedding Models

3.4 Grounding Failures: Hallucinations, Context Poisoning, Distraction

3.5 Mitigation Techniques: Rerankers, Provenance, Context Forensics

3.6 Case Study: Anthropic's Multi-Agent Researcher (MAR)

3.7 Hands-on: Build a RAG Pipeline with Vector Search and Grounded Responses

Module 4: Optimization, Scaling & Enterprise Readiness

4.1 Token Economy & Cost Optimization in Context Pipelines

4.2 Context Scaling & the Model Context Protocol (MCP)

4.3 Security & Compliance: PII Filtering, Redaction, Role-Based Access

4.4 Conflict Resolution & Context Consistency

4.5 Multi-Modal Context: Text, Tables, PDFs, Video Transcripts

4.6 Case Studies: Walmart "Ask Sam" & Morgan Stanley Knowledge Assistant

4.7 Hands-on: Implement Role-Based Context Filtering and Secure Retrieval

Module 5: Context Flow Design for Business Users (No-Code AI)

5.1 Translating Business Processes into AI-Ready Context Flows

5.2 Context Flow Diagrams (CFDs) & Automated Workflow Architecture (AWA)

5.3 Implementing W-S-C-I Visually Using No-Code Tools (n8n / Make / Zapier)

5.4 Context Templates for Consistency & Structured Outputs

5.5 Use Case: Dynamic Customer Onboarding Assistant

5.6 Case Studies: Airbnb Support Automation & HSBC SME Lending

5.7 Hands-on: Build a Context Flow Using No-Code Orchestration

Module 6: Real-World Industry Context Applications

6.1 Context Engineering in Regulated Domains

6.2 Healthcare: Clinical Decision Support & PHI Isolation

6.3 Finance: Market Analysis, Compliance Summarization & Tool-Based Context

6.4 Legal & Education: Precision Retrieval & Personalized Learning Context

6.5 Risk Mitigation: Context Poisoning & Context Clash

6.6 Advanced Agent Memory for Long-Horizon Tasks

6.7 Case Studies: Activeloop (Legal/IP) & Five Sigma (Insurance)

Module 7: Multi-Agent Orchestration & the Future

7.1 Why Monolithic Agents Fail: Context Explosion

7.2 Multi-Agent Systems (MAS) & Context Isolation

7.3 Agent Roles: Router, Planner, Executor

7.4 Agent-to-Agent Context Compression

7.5 Guardrails, Governance & Inter-Agent Safety

7.6 Ethics, Bias Mitigation & Source Traceability

7.7 Case Studies: IBM Watson Orchestrate & Enterprise Context Orchestrators

7.8 Career Pathways: Context Architect & AI Governance Roles

Module 8: Capstone Project & Certification

8.1 Capstone Overview: Multi-Agent Context-Aware System

8.2 Build: Query Router with Financial Calculations & Policy RAG (n8n)

8.3 Presentation, Review & Feedback

8.4 Final Evaluation & AI+ Context Engineering Practitioner™ Certification