Faysal Aziz

Prompt & Context Engineering

From crafting the right prompt to engineering the full context-fabric: mastering human-to-AI communication and deployment in a day

FA-0372

Agentic & Generative AI

Introduction

This one-day intensive workshop bridges the classic craft of instruction (prompt writing) with the emerging system-level discipline of context engineering. Leveraging over 30 years of industry experience, the instructor will guide participants through how to **write effective prompts** for large language models (LLMs) and how to **design the context layer and workflow** around those prompts so that AI-driven systems are reliable, scalable and aligned with business or development goals. As AI moves from experiments to production, understanding both levels—what you ask and what you feed the model—becomes essential.

Learning outcomes

By the end of the course, participants will be able to:

- Explain the difference between prompt engineering and context engineering, and why both matter in the age of generative AI.
- Apply best-practice prompt-writing techniques (zero-shot, few-shot, chain-of-thought) to shape model responses.
- Identify and manage the context components (system instructions, history, retrieval, tools, memory) that surround prompts in production systems.
- Design an end-to-end flow: from user input through context assembly to prompt invocation, model execution and output handling.

- Establish governance, versioning and optimisation processes for prompts and context artefacts in a team or organisational setup.

Prerequisites

Participants should have:

- Basic familiarity with large language models (LLMs) or generative AI tools.
- Comfortable with technical concepts (though deep machine-learning maths is *not* required).
- Experience with development or system design (helps with the context-engineering side).
- Willingness to engage hands-on: refining prompts, analysing outputs, designing context flows.

Training outline

1. Foundations and Definitions

- What is prompt engineering? Definition, history, why it matters.
- What is context engineering? How it extends prompt engineering, and when it becomes critical.
- Why the shift: from single-prompt experiments to multi-turn, tool-enabled, production-scale AI systems.

2. Prompt Engineering Techniques

- Zero-shot prompting: structure, risks, when to use.
- Few-shot prompting and exemplar design: crafting examples, selecting representative samples.
- Chain-of-Thought (CoT) and reasoning prompts: guiding the model through intermediate steps.
- Prompt patterns and templates: persona pattern, flipped prompt, menu actions.
- Prompt evaluation & iteration: how to measure success, debug output, deal with “hallucinations”.

3. Context Engineering Fundamentals

- Context window, token limits and information decay (“context rot”).
- Components of context: system instructions, user history, retrieved documents, tool definitions, memory state.
- Retrieval-Augmented Generation (RAG) and how retrieved context feeds into prompts.
- Memory, long- and short-term state in multi-turn systems: designing workflows.
- Tool, agent and workflow integration: how context engineering supports multi-step automation.

4. Designing End-to-End Workflows

- Mapping user request → context assembly → prompt → model response → output management.
- Token budgeting and ordering: what to put first, what to trim.
- Versioning, reuse and governance of prompts & context artifacts: managing a library of prompt/context templates.
- Monitoring and evaluation: collecting metrics, iterating prompt/context design in production.
- Security, risk & bias: prompt-injection, context vulnerabilities, ethical implications.

5. Hands-On Design Workshop

Participants split into small groups to design:

  - A specific task (e.g., domain expert Q&A, customer-support agent, code generation assistant)
  - Write an initial prompt.
  - Define the context inputs needed (documents, user history, tools).
  - Plan a workflow: how input is collected, context assembled, model invoked, output handled.
- Groups present their designs and receive peer + instructor feedback.

6. Wrap-Up and Next Steps

- Revisiting learning outcomes: ensure participants know how to apply prompt + context engineering.
- Suggested resources and continuing-learning roadmap (including latest guides and research).
- Setting participant personal action plans: next steps in their own environment, prioritising tooling, prompts and context flows.

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