



To discuss this course and customizations:
Call: 434-509-5680 or Email: sales@cloudcontraptions.com

AI for DevOps and SRE

Class Duration

14 hours of live training delivered over 2-3 days to accommodate your scheduling needs.

Student Prerequisites

- DevOps, platform engineering, or SRE experience
- Familiarity with infrastructure as code (Terraform, Pulumi, or equivalent) and CI/CD pipelines

Target Audience

DevOps engineers, platform engineers, and SREs who want to leverage AI agents for infrastructure automation, incident response, and operations workflows. Equally relevant for engineering managers looking to understand where AI tooling can reduce on-call burden and infrastructure toil.

Description

For multi-week team training on this material, see the [AI-Augmented DevOps and SRE Academy](#).

This course applies AI agent capabilities specifically to DevOps and SRE workflows. We cover AI-assisted infrastructure as code generation and review (Terraform, Pulumi, Kubernetes manifests), AI-augmented CI/CD pipelines (pipeline generation, AI code review steps, deployment gate analysis), incident response acceleration (LLM-assisted log analysis, runbook automation, postmortem drafting), and AI-driven cost and reliability analysis. Labs use realistic infrastructure scenarios and integrate AI agents into working pipeline configurations.

Learning Outcomes

- Generate and review Terraform, Pulumi, and Kubernetes manifests using AI coding agents.
- Build CI/CD pipeline configurations with AI assistance and add AI review gates as pipeline steps.
- Use LLMs to analyze log streams and traces for anomaly detection and root cause identification.



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- Automate runbook execution with AI agents and human-approval gates.
- Draft incident postmortems with AI assistance from structured incident timelines.
- Apply AI cost analysis to cloud infrastructure spend and generate optimization recommendations.
- Design safety guardrails for AI agents acting on production infrastructure.

Training Materials

Comprehensive courseware is distributed online at the start of class. All students receive a downloadable MP4 recording of the training.

Software Requirements

Terraform or Pulumi CLI, a cloud provider account (AWS, Azure, or GCP free tier), GitHub Actions or GitLab CI access, and an AI coding assistant.

Training Topics

AI-Assisted Infrastructure as Code

- Generating Terraform and Pulumi modules with AI agents
- Reviewing IaC for security misconfigurations
- Drift detection with AI-assisted analysis
- Kubernetes manifest generation and security scanning

AI-Augmented CI/CD Pipelines

- Pipeline configuration generation from natural language
- AI code review step integration (GitHub Actions, GitLab CI)
- Deployment gate analysis: canary and blue/green with AI scoring
- Pipeline failure diagnosis with LLM assistance

LLM-Assisted Log and Trace Analysis

- Submitting log streams to LLMs for anomaly detection
- Pattern extraction from unstructured logs
- Trace correlation and root cause analysis
- Building a log analysis MCP tool



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Incident Response Automation

- Runbook automation with AI agents
- Human-approval gates for production actions
- Alert enrichment with LLM context
- Reducing mean time to resolution (MTTR)

Postmortem Drafting

- Structured incident timeline as LLM input
- AI-assisted postmortem narrative generation
- Action item extraction and owner assignment
- Postmortem quality review checklist

Cost and Reliability Analysis

- Cloud cost analysis with AI assistance
- Identifying optimization opportunities in infrastructure spend
- Reliability scoring for infrastructure configurations
- Capacity planning with AI-assisted demand forecasting

Safety Guardrails for Infrastructure Agents

- Principle of least privilege for AI infra agents
- Approval gates for destructive operations
- Audit logging for agent-initiated changes
- Rollback design for AI-driven deployments

Workshop

- IaC generation and security review lab
- Runbook automation exercise
- Log analysis pipeline exercise
- Q&A session