MARK COX

Birmingham, AL | 205-732-2269 | coxaiservices@gmail.com

LinkedIn: linkedin.com/in/coxaiservices | GitHub: github.com/coxaiservices-dotcom

Prompt Engineer & Generative AI Specialist

Certified through Vanderbilt University in Generative AI Software Engineering, Data Analysis, and Leadership. Skilled in multi-turn conversational design, retrieval-augmented generation (RAG) pipelines, and prompt evaluation frameworks. Experienced in adversarial testing, code generation reliability, and AI system optimization.

WORK EXPERIENCE

AI Systems Prompt Engineer | Jobot Consulting   05/2025 – Present | Remote

• Prompted LLMs to generate Python and C++ code, evaluating outputs for correctness, efficiency, and standards compliance.

• Applied RAG-based context injection (coding standards, documentation) to improve model-generated code.

• Conducted structured reviews of AI-generated solutions for maintainability and deployment readiness.

• Delivered feedback loops to refine prompting approaches and strengthen AI-assisted workflows.

Prompt Engineer | Adversarial Testing & Evaluation | Outlier AI   08/2022 – Present | Remote

• Performed advanced prompt engineering on proprietary/domain-specific LLMs across analytics and compliance.

• Designed and executed multi-turn prompting and model steering for accurate task completion.

• Applied advanced techniques (chain-of-thought, modular chaining, self-consistency, persona-based, retrieval-aware prompting).

• Built adversarial tests with red herrings and scaling complexity to stress-test and reveal failure thresholds.

• Documented evaluations and delivered structured feedback to improve robustness.

Senior Software Architect & Chair, Enterprise Architecture Advisory | Infinity Insurance   06/2011 – 06/2018 | Birmingham, AL

• Modernized legacy enterprise systems (VB6/ASP) to Java platforms.

• Chaired architecture committee to enforce standards and compliance in system design.

Senior Principal Member of Technical Staff, Distinguished Engineer | Northrop Grumman IT, Air Force Wargaming Research Institute   12/1995 – 12/2010 | Maxwell AFB, AL

• Led architecture and development of mission-critical software systems and advanced analytics platforms supporting strategic military operations.

CAPSTONE & RESEARCH PROJECTS

Retrieval Injection & Hallucination Study – Investigated how adding domain knowledge via RAG context impacts hallucination rates. Built benchmark Q&A; tasks and measured model responses with/without retrieval.

Conversational Context Drift Experiment – Explored how LLMs handle long multi-turn conversations. Built prototypes with LangChain, introduced distractors, measured points of drift or contradiction.

RAG for Code Generation Reliability – Studied injecting coding standards via RAG to improve Python/C++ code quality. Evaluated correctness, linting, and maintainability.

AI CERTIFICATIONS & CAPSTONE PORTFOLIO – VANDERBILT UNIVERSITY

Generative AI Software Engineering Specialization

• Multi-agent orchestration (Claude Code) and Python AI agent development with metaprogramming.
• Applied practices including multi-branch Git workflows, Best-of-N prompting, and staged safety execution.
• Capstone: Built a multi-agent orchestration system with Claude Code subagents to generate, test, and integrate features.

Generative AI Data Analyst Specialization

• Mastered CLUE, TRUST, and CAPTURE frameworks for SQL query accuracy and reproducibility.
• Designed retrieval-augmented workflows for SQL, Excel, and unstructured data with visualization.
• Capstone: Built an AI-powered BI dashboard with natural language → SQL → Excel → PowerPoint pipeline.

Prompt Engineering Specialization

• Applied 16 advanced prompt patterns including chain-of-thought, modular chaining, self-consistency, persona prompting, and retrieval-augmented prompting.
• Capstone: Created a multi-turn conversational assistant using persona prompting + retrieval injection, evaluated with structured scoring.

Generative AI Leadership & Strategy Specialization

• Built AI adoption strategies and governance frameworks for organizational risk and ethics.
• Capstone: Led an AI strategy exercise using LLMs as a private think-tank to draft a change-management plan and board-ready briefing.

TECHNICAL SKILLS

Prompt Engineering & RAG: Multi-turn design, adversarial prompting, hallucination mitigation, RAG pipelines, evaluation frameworks

Frameworks & Tools: LangChain, LlamaIndex, ChatGPT Code Interpreter (ADA), Claude Code orchestration

Programming & Deployment: Python, SQL, Java, C++, C#, Git/GitHub, Jenkins, Docker, REST/GraphQL APIs

EDUCATION

M.S. Computer Science & Engineering – Auburn University

M.S. Applied Mathematics – Auburn University

B.S. Applied Mathematics – Augustana College