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Training US Workforce for Generative AI Models and Prompt Engineering: ChatGPT, Copilot, and Gemini

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Abstract- A structured literature review categorizes existing research into five key areas: comparative studies, tutorials, expert opinions, editorials, and performance applications. We analyze the types of instruction, duration, costs, providers, and intended audience for training programs involving these tools. A comparative table synthesizes findings from the literature to highlight key differences. We explore their functionalities, strengths, weaknesses, and applications across education, software development, and various industries. The study examines how these tools enhance skills through structured training programs, covering curriculum design, prompt engineering techniques, and ethical considerations.

Keywords- Generative AI, Large Language Models (LLMs), Prompt Engineering, ChatGPT, Copilot, Gemini, Workforce Development

I. INTRODUCTION

Generative AI (GenAI) models are evolving rapidly, making it crucial to understand their capabilities and applications. This paper synthesizes existing knowledge concerning three prominent models: ChatGPT, Microsoft Copilot, and Google Gemini. With the increasing adoption of ChatGPT, Copilot, and Gemini, tutorials are essential for users to effectively leverage these tools. This section examines the range of available tutorials.

With the increasing adoption of ChatGPT, Copilot, and Gemini, tutorials are essential for users to effectively leverage these tools. This section examines the range of available tutorials and presents a table comparing them. Generative AI has gained prominence in various domains, necessitating a structured review of existing literature. This paper classifies contributions into distinct categories for better comprehension.
The field of Artificial Intelligence (AI) has witnessed remarkable advancements in recent years, particularly in the realm of Large Language Models (LLMs). These models, trained on vast amounts of text data, have demonstrated impressive capabilities in generating human-like text, translating languages, writing different kinds of creative content, and answering your questions in an informative way [1], [2]. This paper focuses on three leading LLMs: ChatGPT, Gemini, and Copilot, examining their features, performance, and implications across various domains.

A structured training program is essential. This paper presents a detailed outline, drawing on available guides and resources. Developing effective curricula for GenAI tools is crucial. This section explores potential curriculum components, drawing on available guides and resources.

This paper further presents a detailed training program outline for Generative AI tools, including learning objectives, activities, and assessments. We also discuss broader implications of ChatGPT, Copilot, and Gemini in the evolving technological landscape, particularly their impact on education and workforce development. By reviewing existing