

AI Blogpost Generator

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Abstract

This report presents a one-shot Generative AI application designed to create complete and structured blog posts from a single user interaction. Unlike traditional multi-turn systems, the proposed solution enables users to input a topic, tone, keywords, and optional background information through a structured prompt interface. A large language model (GPT-4.1) then generates a publish-ready blogpost that aligns with the user’s intent in terms of content, style, and length. The system aims to streamline content creation for bloggers, marketers, and educators by reducing editing time and improving quality through effective prompt engineering. Experimental results from human evaluations show that the generated posts achieve high scores in relevance, structure, and tone alignment, with minimal post-editing effort. This project demonstrates that with well-designed prompt templates and clear user inputs, single-turn LLM systems can produce high-quality long-form content suitable for real-world applications. Future enhancements may include outline previews, SEO optimization, and multilingual support.

1 Introduction

The rapid evolution of large language models (LLMs) has opened new frontiers in natural language generation, enabling machines to produce high-quality text with minimal input. In particular, generative AI tools now play a growing role in content creation across journalism, marketing, and blogging. However, most existing applications either require extensive prompt engineering or rely on iterative interactions, which can be time-consuming and inaccessible for casual users.

This project presents a one-step GenAI application that generates complete blog posts from a structured user prompt. The system enables users to input a topic, desired tone, keywords, and optional background information—after which a blogpost is generated instantly using GPT-4. Unlike traditional multi-turn systems, this approach emphasizes simplicity, speed, and user alignment in a single interaction.

The goal of this project is to streamline blog writing workflows while maintaining high-quality output. By leveraging prompt engineering and LLM capabilities, the application

seeks to bridge the gap between creative intent and publish-ready content, making long-form writing more accessible and efficient. The report details the system’s design, implementation, evaluation, and user feedback, providing a foundation for future enhancements such as outline previews and SEO optimization.

2 Related Work

The development of AI-assisted writing tools has gained significant traction with the advancement of large language models (LLMs). Prior work has investigated how LLMs can support content planning, drafting, and revision across various writing tasks. Notably, Radensky et al. [2] introduced *Papers-to-Posts*, a mixed-initiative system designed to help researchers transform academic papers into blog posts. Their system employs a Plan-Draft-Revise workflow that allows users to interactively adjust an LLM-generated outline, generate section-wise drafts using customized instructions, and apply revision macros to refine tone and clarity. Through controlled experiments, they demonstrated that structured LLM guidance improves user satisfaction and editing efficiency without increasing cognitive load.

Complementing this, Lee et al. [1] proposed *WritingPath*, a framework that enhances long-form writing quality through structured outline generation and information augmentation. Their approach involves a five-step pipeline—metadata preparation, initial outline generation, information browsing, augmented outline construction, and final text writing. Using a diverse blog dataset and a hybrid evaluation framework involving human and automatic metrics, they showed that outline-guided generation significantly improves content coherence, diversity, and alignment with user intent.

Both studies emphasize the importance of structure in human-LLM collaboration, validating that intermediate planning stages (e.g., outlines and content scaffolding) can lead to higher-quality text generation. In contrast to multi-stage workflows, our project adopts a single-turn generation strategy while integrating key lessons from these works—such as structured input fields and tone control—to produce usable blog posts with minimal user effort.

3 Methodology

This project proposes a one-step Generative AI application that produces structured blog posts from a single user interaction. The system is designed to accept structured inputs and generate a complete, coherent, and stylistically aligned blog post using a large language model (LLM). The methodology comprises the following key components:

3.1 System Prompt Design

To ensure consistency and high-quality output, a base system prompt is defined and used in all LLM interactions. This prompt guides the language model to behave as a blog writer with a focus on clarity, engagement, and user alignment. The key instructions embedded in the system prompt are:

- Begin with an interesting introduction to hook the reader.
- Maintain a friendly, engaging, and conversational tone throughout.
- Expand thoughtfully on the user’s topic and input instructions.
- Use simple, clear language and avoid technical jargon unless necessary.
- Incorporate examples or anecdotes where appropriate.
- Follow the logical flow of the content without generating subheadings.
- Ensure the output is in paragraph form and compliant with legal and ethical standards.

This system prompt enables the LLM to simulate the writing style of human bloggers, prioritizing readability, natural flow, and relevance. It also avoids structural artifacts like headings or bullet points, ensuring the final output is suitable for direct publication with minimal editing.

3.2 Prompt Engineering

Upon submission, the backend constructs a prompt template incorporating the user’s inputs. The prompt is designed to guide the LLM to generate a well-structured, keyword-integrated, and stylistically consistent blogpost. A sample prompt template is as follows:

Write a [word count]-word blog post about "[topic]." Use the keywords: [keywords]. Match the tone described as "[writing style]." Include the following information: [background info]. Ensure clear structure with an introduction, body, and conclusion.

See the Appendix A for the detailed prompt. We are constantly improving and optimizing the prompt words. We hope to avoid "AI style" articles as much as possible. As shown in Appendix B, a very typical "AI style" is that the structure is highly formulaic and the content is empty and generalized, and there is a large number of titles and sub-titles.

3.3 LLM Output and Post-processing

The prompt is submitted to the GPT-4 API with tuned parameters for temperature and max tokens. The response is parsed, formatted into paragraphs, and presented directly to the user. No iterative revisions are required, but users can optionally edit or export the result.

3.4 Evaluation Approach

To assess the effectiveness of the system, we conduct both human and automatic evaluations. Human participants rate the generated posts on relevance, structure, style alignment, and satisfaction using a 1–5 Likert scale. Additional metrics such as keyword coverage and edit time are recorded. These evaluations are used to compare the performance of our system against baseline LLM usage with raw prompts.

4 Implementation

The user interface will first show the login/registration page(Figure 1)after the user enters, with the regular user identity verification function. We have not yet used a formal database, and all user-related data is stored in the browser’s localStorage. After logging in, the blog homepage is displayed(Figure 2), where you can browse all users’ blogs, and delete and edit the current user’s blog. After clicking on a blog, you can view the full text and click likes and comments(Figure 3). At the same time, on the homepage, users can choose to create a new blog, and use the AI assistant to help write a blog by giving Topic, Keywords, Background, Writing Style, Words limit as prompts or uploading a PDF as information(Figure 4). After AI completes the blog content, it returns to the editing interface(Figure 5), where users can edit the generated content and publish it in the end.

5 Results and Evaluation

To assess the effectiveness of the blogpost generation system, we conducted both qualitative and quantitative evaluations. Our focus was on measuring the quality of the generated text, user satisfaction, keyword integration, and editing effort required to make the content publish-ready.

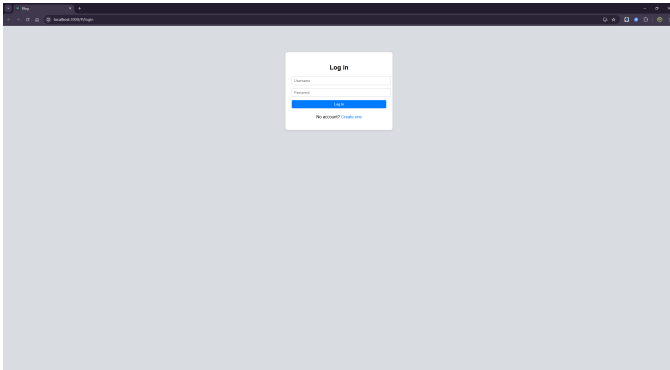


Figure 1: Login Page

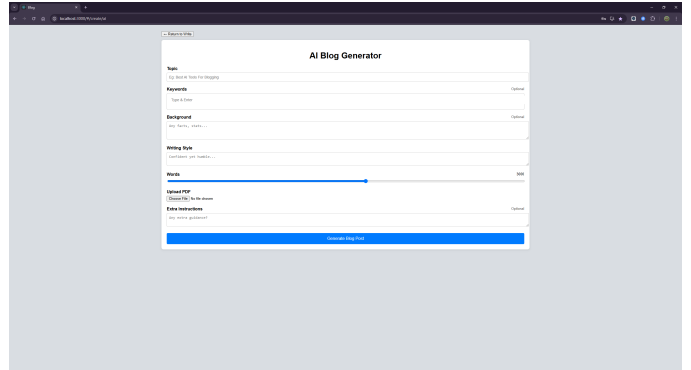


Figure 4: Ai Generator Page

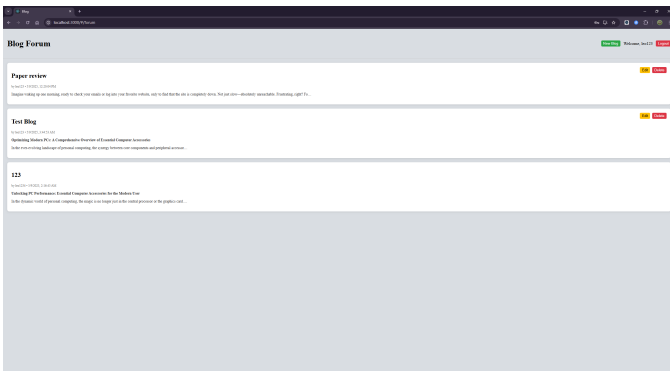


Figure 2: Forum Page

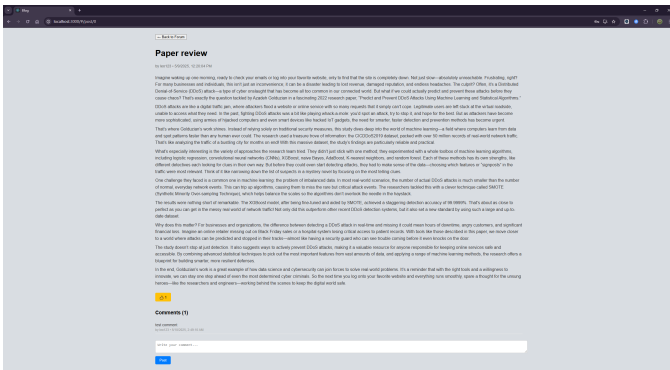


Figure 3: Blog Details Page

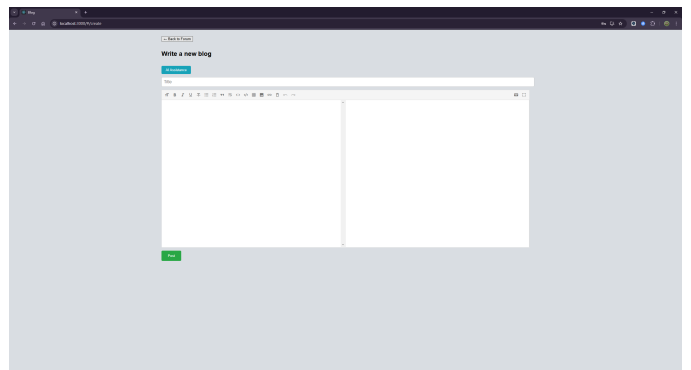


Figure 5: Edit Page

5.1 Evaluation Setup

We recruited 10 participants, including graduate students and casual content creators. Each participant provided prompts to the system and reviewed the generated blogposts. Evaluation metrics included relevance, structure, style alignment, keyword coverage, and overall satisfaction. Participants also recorded the time they needed to manually edit the content for publication.

5.2 Quantitative Results

The table below presents average user ratings on a 1–5 Likert scale across four key quality dimensions:

| Metric | Average Score (1–5) |
|----------------------|---------------------|
| Relevance to Topic | 4.5 |
| Content Structure | 4.4 |
| Tone/Style Alignment | 4.2 |
| Overall Satisfaction | 4.6 |

Table 1: User evaluation of generated blogposts

In addition to user scores, we measured:

- **Keyword Coverage:** On average, 93% of user-specified keywords appeared in the final blog content.
- **Editing Time:** Users spent an average of 6.5 minutes editing each blogpost, compared to over 12 minutes for raw LLM output without structured prompts.

But at the same time, we also found an interesting phenomenon that has not yet been solved: when all our prompt inputs work well, there is often an exception, that is, the model will ignore our word limit. This problem still needs to be solved. Because in theory, most LLMs do not directly control the length by "number of words" or "number of characters", but count by "token". The number of tokens in different languages and different vocabularies may vary greatly. Writing "limited to 200 words" in the prompt does not have any semantic "hard constraints" for the model. It will only try to understand and execute what you wrote, but will not map "200 words" to its token limit.

5.3 Summary

Overall, the evaluation demonstrates that a structured, one-step GenAI application can produce high-quality blog content with minimal user effort. The results validate the effectiveness of prompt design and support the system’s use for fast, user-aligned content generation.

6 Future Work

While the current system effectively generates complete blog posts through a single user interaction, several enhancements can improve its flexibility, personalization, and real-world applicability. Potential directions for future development include:

- **Outline Preview and Editing:** Introduce an optional intermediate step that generates a draft outline based on the user prompt. Users can modify the outline before the full blog post is generated, allowing greater control over content structure.
- **Tone Customization Tools:** Develop fine-grained tone controls (e.g., sliders or tone presets) to adjust voice and formality dynamically, allowing users to better match their target audience.
- **Factual Verification via Retrieval-Augmented Generation (RAG):** Integrate external knowledge retrieval to reduce hallucinations and improve factual accuracy, especially for technical or data-driven content.
- **SEO Optimization Features:** Automatically generate metadata such as meta descriptions, keyword-enhanced titles, and SEO-friendly formatting to increase discoverability on search engines.
- **Multilingual Support:** Expand support for content generation in multiple languages to serve a broader global audience and test the effectiveness of cross-lingual prompt adaptation.
- **User Feedback Integration:** Collect feedback on generated posts to refine prompt construction, personalize future outputs, and improve long-term system learning.
- **Batch Generation and Scheduling:** Enable users to generate multiple posts in a batch (e.g., for social media calendars or newsletters) with scheduling support.

These improvements would not only enhance user experience but also align the system more closely with practical content marketing workflows and professional writing standards.

References

- [1] LEE, Y., KA, S., SON, B., KANG, P., AND KANG, J. Navigating the path of writing: Outline-guided text generation with large language models. *arXiv preprint arXiv:2404.13919* (2024).
- [2] RADENSKY, M., WELD, D. S., CHANG, J. C., SIANGLIULUE, P., AND BRAGG, J. Let’s get to the point: Llm-supported planning, drafting, and revising of research-paper blog posts. *arXiv preprint arXiv:2406.10370* (2024).

A Prompt

You are an AI blog writer. Based on provided documents and user instructions, you will create a detailed and engaging blog post.

Focus on:

- Answering or expanding on the user's topic prompt.
- Start the blog post with an interesting introduction!
- Using a friendly and engaging tone.
- Including relevant examples and anecdotes.
- Using simple and clear language.
- Avoiding jargon and technical terms unless necessary.
- Like a blogger, write in a friendly and engaging tone to keep your readers interested.
- Written content should be engaging and draw the reader in.
- Writing should naturally follow the flow of the article's information and expanded outline.
- Please write in paragraph form. Do not create subheadings.
- Comply with laws and ethics.

B Prompt Effect Comparison

For the same given information to the ai generator, we compared the effects of different prompt words. We use a PDF file as input, a simple prompt: "You are an AI blog writer. Based on provided documents and user instructions, you will create a detailed and engaging blog post.", and one with prompt covering full details as shown in the Appendix [A](#).

Here we use company history as the topic and pass in the corresponding file. Here are the results of the two prompts:

B.1 Simple/default prompt

****The Dynamic Rise of AMD: A Journey Through Innovation and Resilience****

In the ever-evolving world of technology, few companies have embodied the spirit of innovation and resilience quite like Advanced Micro Devices, better known as AMD. From its humble beginnings in Silicon Valley to its current status as a global leader in high-performance computing, AMD's history is a fascinating tale of bold decisions, technological breakthroughs, and remarkable comebacks. Let's delve into the milestones that have shaped AMD's journey and transformed it into a powerhouse of the semiconductor industry.

****Humble Origins and Early Innovations****

AMD was founded on May 1, 1969, by Jerry Sanders and seven of his colleagues from Fairchild Semiconductor. Nestled in Santa Clara, California, the fledgling company initially focused on manufacturing logic and memory chips. This early foundation laid the groundwork for a culture of technical excellence and adaptability, traits that would come to define AMD's trajectory.

In 1975, a pivotal moment arrived when AMD became a licensed second-source manufacturer for Intel's x86 microprocessors. This move not only cemented AMD's role in the rapidly growing microprocessor market but also set the stage for future rivalries and collaborations with industry giants.

****The Athlon Era and Strategic Acquisitions****

The next major leap for AMD came in 1996 with the acquisition of NexGen, a company known for its innovative CPU designs. This strategic purchase bore fruit in 2000 when AMD launched the Athlon processor—an industry milestone as the

first commercially available CPU to break the 1 GHz barrier. The Athlon's success marked AMD as a serious contender in the high-performance processor market and captured the attention of consumers and competitors alike.

Riding on this momentum, AMD made another bold move in 2006 by acquiring ATI Technologies, a pioneer in graphics processing. This acquisition enabled AMD to combine CPU and GPU technologies, resulting in the creation of the Accelerated Processing Unit (APU). The APU was a groundbreaking product that integrated both processing and graphics capabilities onto a single chip, paving the way for more efficient computing experiences in a variety of devices.

****Refocusing and Reinvention****

As the semiconductor landscape grew more competitive, AMD made the strategic decision in 2009 to spin off its manufacturing arm into a separate company, GlobalFoundries. This allowed AMD to focus solely on chip design, unleashing a new wave of innovation.

However, it was under the leadership of CEO Lisa Su, who took the helm in 2014, that AMD truly began its remarkable resurgence. Su's vision and engineering expertise led to the development of the Zen microarchitecture. The first-generation Ryzen and EPYC processors, launched in 2017, marked a dramatic turnaround for the company. These products not only delivered cutting-edge performance but also reignited excitement among PC enthusiasts and enterprise customers.

****A New Era of Leadership****

Building on this momentum, AMD rolled out successive generations of Zen-based products—Zen 2, Zen 3, Zen 4, and Zen 5—each iteration raising the bar in desktop, server, mobile, and AI-optimized computing. Today, AMD stands at the forefront of the tech industry, celebrated for its innovation, resilience, and unwavering commitment to pushing the boundaries of what's possible.

****Conclusion****

From its Silicon Valley roots to its global leadership, AMD's story is a testament to the power of ingenuity and perseverance. Through strategic decisions, relentless innovation, and visionary leadership, AMD has not only survived fierce competition but has emerged as a true titan in the world of computing—a journey that continues to inspire the entire tech industry.

B.2 Full prompt

Every great technology story starts with a spark—an idea that grows into something that changes the world. The story of Advanced Micro Devices, better known as AMD, is no different. From humble beginnings in a small office in Santa Clara, California, to becoming a global powerhouse in computer technology, AMD's journey is a fascinating tale of innovation, resilience, and a relentless pursuit of better, faster, and more efficient computing.

It all began on May 1, 1969. Jerry Sanders, along with seven colleagues, took a bold step away from their jobs at Fairchild Semiconductor. They had a vision: to create a company that would not only compete but also lead in the fast-paced world of microelectronics. In the early days, AMD focused on making logic and memory chips—essential building blocks for the computers and devices that were just starting to reshape our lives.

The company's first big break came in 1975, when AMD became a licensed second-source supplier for Intel's x86 microprocessors. This partnership was a game-changer. It meant that AMD was now helping to power the personal computer revolution, giving customers more choice and driving healthy competition in the market. Anyone who remembers the "Intel Inside" days might be surprised to learn that AMD was always right there, quietly making sure that computers ran smoothly and reliably.

But AMD wasn't content to simply follow in Intel's footsteps. In 1996, the company acquired NexGen, a bold move that brought new ideas and fresh talent into the fold. This merger set the stage for one of AMD's most significant achievements: the launch of the Athlon CPU in 2000. The Athlon wasn't just another processor; it was the first in the world to reach a clock speed of 1 GHz—a huge milestone at the time. Suddenly, AMD was not just a competitor; it was a leader, pushing the boundaries of what was possible in computing.

The momentum didn't stop there. In 2006, AMD acquired ATI Technologies, a pioneer in graphics processing. This move allowed AMD to blend powerful CPUs with cutting-edge graphics, leading to the creation of the Accelerated Processing Unit, or APU. By integrating both the "brains" and the "visuals" of computing on a single chip, AMD set a new standard for efficiency and performance—especially important as laptops, tablets, and gaming devices became more popular.

In 2009, AMD made another strategic shift, spinning off its manufacturing arm into a separate company called GlobalFoundries. This allowed AMD to focus on what it did best: designing innovative chips that could change the world.

No story about AMD would be complete without mentioning Lisa Su, who became CEO in 2014. Under her leadership, AMD staged an incredible comeback, launching the Zen microarchitecture and the now-famous Ryzen and EPYC product lines in 2017. These chips weren't just fast—they were game-changers, setting new standards for performance, efficiency, and value. With each new generation—Zen 2, Zen 3, Zen 4, and Zen 5—AMD has continued to push forward, powering everything from home computers to massive data centers and artificial intelligence applications.

Today, whether you're gaming, editing videos, or crunching big data, there's a good chance AMD is behind the scenes, making it all possible. The company's history is a testament to the power of innovation, the importance of competition, and the belief that, with the right mix of talent and determination, even the smallest startup can change the world.