ComicCrafter AI

Comic Generation using Local AI Models

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Objective

- To build a fully AI-powered ComicCrafter system that takes a short user prompt and transforms it into:
- - A creative 2-panel comic story with vivid scenes and dialogue
- - High-quality comic panel images generated using local AI
- - A final merged comic layout presented in a web interface

- This entire system is designed to run completely offline, utilizing local language and image generation models.

Problems Faced

- 1. Hardware Constraints:
- - Limited to an 8GB RAM laptop with no dedicated GPU
- - Performance optimizations required for CPU-only processing

- 2. Model Integration Issues:
- - Errors related to insufficient memory allocation during model execution
- - Mistral model not found or failing to load due to missing configuration

- 3. Model Download and Setup:
- - Difficulty in linking manually downloaded models
- - Required setting custom model paths and registering manifests manually

- 4. Compatibility and Execution Errors:
- - Conflicts in system file paths and Ollama’s expected configuration
- - Need to balance performance with visual and textual output quality

Process

- 1. Model Selection and Setup:
- - Selected Mistral 7B GGUF model for local text generation
- - Used Stable Diffusion v1.5 via HuggingFace Diffusers for comic image generation in CPU mode

- 2. Interface Development:
- - Built a Gradio-based web UI to capture user ideas
- - Text prompts are passed to the language model to generate a structured comic story

- 3. Image Generation and Composition:
- - Each panel description is passed to Stable Diffusion to generate images
- - All panels are merged horizontally into a single comic strip

- 4. Deployment:
- - Set up environment variables to recognize local model paths

Conclusion

- Despite operating on a low-spec system (8GB RAM, no GPU), the ComicCrafter AI successfully achieves the core objectives of:
- - Story generation using a local Mistral language model
- - Panel rendering using Stable Diffusion on CPU
- - Fully offline and API-free functioning

- While performance may not match high-end configurations, the system demonstrates that:
- - AI comic generation is feasible on modest hardware
- - With optimization, it can produce creative and coherent outputs
- - This project lays the foundation for future enhancement on more powerful systems

- The ComicCrafter AI proves that intelligent creativity is possible even under constrained computing environments.