

CALYPSO

LLMs as Dungeon Master's
Assistants

**Using AI to Support Storytelling in Dungeons &
Dragons**

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Year: 2023

What is Dungeons & Dragons (D&D)?

- **Collaborative Storytelling:** A role-playing game where players create characters and explore a shared world.
- **The Dungeon Master (DM):** One player controls the world, narrates events, and guides the story.
- **The Goal:** Unlike traditional games, the goal is creative storytelling, not "winning."



The Role of the Dungeon Master



Information Digestor

Digests information about the game setting and monsters to synthesize the scene.



Actor & Narrator

Act and speak for many NPCs and creatures; narrates events and guides the action.



Referee & Guide

Maintains consistency, tracks rules, and responds to all player interactions/decisions.

Challenges DMs Face

Overwhelming Cognitive Load

The simultaneous need to synthesize scenes, remember lore/stats, and maintain narrative consistency is a feat of human cognition.

Barrier to Entry

This high demand makes the task tiring for experienced DMs and unapproachable to new players who feel pressured to "be creative" quickly.

Large Language Models (LLMs)

LLMs like GPT-3 or ChatGPT are promising assistants for storytelling tasks—designed to support, not replace, the human DM.

- ✍ **Generation:** Create human-like text for dialogue and descriptions.
- ➕ **Summarization:** Condense long text or expand short notes into rich details.
- 💡 **Brainstorming:** Support creativity by offering ideas and plot hooks.



AI Assistant

A tool for inspiration and load reduction.



Co-Creating Stories

CALYPSO demonstrates that AI works best when it reduces workload and provides inspiration, respecting human creativity without taking away control.

Design Motivations: What DMs Want

Collaboration over Automation

DMs wanted inspiration and help, but insisted on staying in control of the storytelling. They did not want the AI to run the game for them.

Speed & Clarity

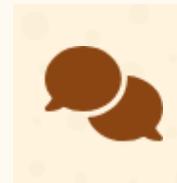
Because gameplay happens in real-time, the tool must be fast. DMs preferred simple, clear summaries over dense generated lore.

CALYPSO System Overview



1. Encounter Understanding

Generates short, actionable descriptions of monsters and settings.



2. Focused Brainstorming

A chat interface for developing specific scene ideas further.



3. Open-Domain Chat

General-purpose conversation for broad creativity and worldbuilding.

1. Encounter Understanding

This interface converts long monster manual entries into short, DM-friendly summaries.

- ✓ Highlights unique abilities.
- ✓ Provides useful roleplay cues.
- ✓ Uses thematic common sense (not just raw rules text).



Bite-Sized Prose

Helps the DM quickly grasp a new encounter and present it with confidence.

2. Focused Brainstorming

• DM Query

DMs can ask specific questions during the game to unblock creativity:

- "How should these monsters behave?"
- "What does this location look like?"
- "Why is this creature here?"

• CALYPSO Response

Provides suggestions for tactics, scene descriptions, or story reasoning.

Key Benefit: Supports co-creation rather than automation.

3. Open-Domain Chat



Creative Exploration

Used outside of combat for slower, deeper creativity.

- Worldbuilding ideas.
- NPC personalities.
- Side quests and backstories.

User Study & Results

71

Players

Involved

4

Months

Duration

- ★ DMs reported that summaries made monsters easier to run.
- ★ Brainstorming increased creativity and confidence.
- ★ The tool was most helpful during fast improvisation moments.
- ★ DMs reported that CALYPSO generated high-fidelity text.

Future Work & References

Future Work Directions:

 Active Writer AI: Explore dynamic interaction strategies where the AI acts as an active, collaborative writer. (Yang et al., 2022)

 Remote Collaboration: Address design opportunities for socially connected game experiences in remote tabletop play.

(Yuan et al., 2021)

 Intent & Theory-of-Mind: Develop models that can converse and guide based on player intent and theory-of-mind. (Zhou et al., 2023)

Selected References:

- Yang, D. et al. (2022). AI as an Active Writer: Interaction strategies with generated text in human-AI collaborative fiction writing.
- Yuan, Y. et al. (2021). Tabletop Games in the Age of Remote Collaboration... CHI Conference.
- Zhou, P. et al. (2023). I Cast Detect Thoughts: Learning to Converse and Guide with Intents and Theory-of-Mind in Dungeons and Dragons. ACL.



Questions? Discussion? Let the co-
creation continue!