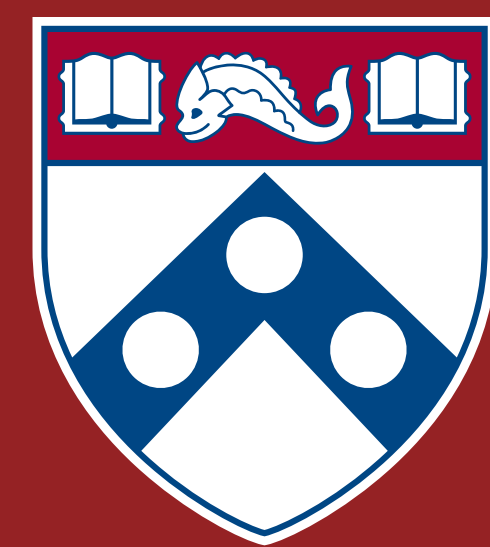


# CALYPSO

LLMs as Dungeon Masters' Assistants

Andrew Zhu, Lara J. Martin, Andrew Head, Chris Callison-Burch

{andrz, head, ccb}@seas.upenn.edu; laramar@umbc.edu



Penn  
UNIVERSITY of PENNSYLVANIA

CALYPSO is a large language model (LLM) system built to aid Dungeon Masters (DMs). CALYPSO exhibits **thematic commonsense** and helps DMs without taking away human **creative agency**.

## INTRODUCTION

- DMing in D&D involves multiple tasks that can be overwhelming
- We interviewed DMs to understand how they digest game information
- Using these design motivations, we created an LLM-powered system
- 71 D&D players used CALYPSO for 4 months, studied with HCI techniques
- Compared to an open-ended chat baseline

## DM EXPERIENCE

**Woodlands**  
In the woodlands, towering trees reach up above a bed of fallen leaves and dense greenery. Nature-inclined characters might be able to recognize the distinct presence of redwoods and sequoias, hundreds of feet tall and dozens of feet across at their base, but a smart Forest Encounters (Levels 5–10)

d100	Encounter
01	204 <i>vine blight</i>
02	206 <i>hebbobulus</i> or 206 <i>ores</i>
03	204 <i>ape</i>
04	143 <i>will-o'-the-wisp</i>
05	144 <i>war</i>
06	1 <i>see eye</i>
07	143 <i>axe</i>
08	1 <i>goblin</i>
09	1 <i>faerie</i>
10	1 <i>brown</i>
11–13	144 <i>giant</i>
14–15	148 + 1
16–17	1 <i>hazdri</i>
18	1410 <i>gla</i>
19	143 <i>axe</i>
20	143 <i>axe</i>
21–25	1 <i>see eye</i>

**OWLBEAR**  
Challenge 3 (700 XP) Proficiency Bonus +2  
Large Monstrously Unaligned

**Keen Sight and Smell.** The owlbear has advantage on Wisdom (Perception) checks that rely on sight or smell.

**Armor Class 13 (natural armor)**  
**Hit Points 59** (1d10 + 21)  
**Speed 40 ft.**

**Actions**  
**Multitask.** The owlbear makes two attacks: one with its beak and one with its claws.  
**Beak.** Melee Weapon Attack: +7 to hit, reach 5 ft., one creature. Hit: 10 (1d10 + 5) piercing damage.  
**Claws.** Melee Weapon Attack: +7 to hit, reach 5 ft., one target. Hit: 14 (2d8 + 5) slashing damage.

**Skills** Perception +3  
**Senses** Darkvision 60 ft., Passive Perception 13  
**Languages** —

**Description**  
A monstrous cross between giant owl and bear, an owlbear's reputation for ferocity and aggressive makes it

Rolling for random encounter...  
NLPDemo - Tier 2  
Roll: 1d100 (61) = 61  
1d4 (3) = 3 Owlbear

Help me understand the monsters  
Brainstorm with me

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**Encounter Summary**  
The owlbear is a monstrous combination of owl and bear; its shaggy coat is covered in feathers and it has an owl's head with round eyes. It emits a terrifying screech that announces the death of its prey and it preys on most creatures within its hunting grounds. It is intelligent but difficult to tame, and it is often used as a mount or guard by those living in remote settlements. While its origins remain uncertain, some believe they have always existed in the Feywild.

These three owlbears are likely hunting together as a family and they are consummate predators. They screech to declare their territory, flush prey into their hunting grounds, and drag partially devoured kills back to their den. They be dangerous foes when provoked, showing no fear for foes larger than themselves, so approach with caution.

The summary was helpful! The summary wasn't that helpful.

### Encounter Understanding (GPT-3): 0-shot setup of the encounter

**Dungeon Master** Today at 16:08  
What are these three owlbears hunting?

**CalypsO BOT** Today at 16:08  
These three owlbears are hunting for their next meal, which could include a variety of creatures found in the woodlands. As opportunistic predators, they may target large herbivores such as deer or elk, as well as smaller creatures like rabbits, raccoons, and even snakes if they come across them. They may also attack other predators if they pose a threat or a chance for an easy meal. The presence of these owlbears in the area may have been noticed by the local fauna, causing some creatures to become more cautious and scarce. This could potentially make the owlbears more aggressive and desperate in their search for food, leading to a higher chance of them attacking any unwary adventurers that happen upon their path.

### Focused Brainstorming (ChatGPT): ask questions or refine setup

## DESIGN MOTIVATIONS

### Inspiration.

- Generate first draft to build upon
- Overcome writer's block

### Strategic Copilot.

- High-level monster strategy
- Stay faithful to monster stats

### Thematic Commonsense.

- Fill in missing lore with fantasy knowledge given existing context

- D&D: Medieval fantasy themes

### Simple Language.

- Monster lore: long and elaborate
- Multiple monsters in scene

## USE CASES

### General Descriptions.

- High-level descriptions of scene  
"Describe this encounter from the player's perspective." (P8)

### Specific Descriptions.

- Specific questions about scene in response to player actions  
"Describe drinking games that the satyrs are taking part in that are so dangerous someone could get hurt doing them." (P17)

### Strategy.

- Monster motives and tactics  
"Why would a Displacer Beast Kitten leave the safety of its den if it believes an intruder is nearby?" (P12)

### Making Decisions.

- Decide how DM should run scene  
"Should a diplomatic solution be possible for this encounter?" (P14)

### List of Ideas.

- Generate list of multiple ideas to use  
"give me encounter ideas" (P10)

## CONCLUSIONS

- DMs used CALYPSO to generate high- and low-fidelity ideas they could expand upon
- LLMs fill in the gaps in D&D literature by probing thematic knowledge from pretraining
- LLMs assist, rather than replace, the human DM

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