

Conceptual Framework for Procedural Storytelling with Large Language Model Application

Abstract

This paper presents a conceptual framework for procedural storytelling in games, integrating large language models (LLMs) to generate coherent narrative content.

Building on foundational research in procedural content generation and narrative theory (Shaker, Togelius, & Nelson, 2016; Riedl & Young, 2010; Spierling & Szilas, 2009; Short & Adams, 2017, 2019), the framework addresses limitations in producing fluent, contextually appropriate text. Drawing on Chatman's distinction between story and discourse (1978, 1980), the model employs a five-layer architecture encompassing worldbuilding and culture, regions and settlements, NPC characterization, quests, and textual units. Each layer defines variables, instances, and functions, enabling hierarchical generation of consistent content. LLMs are used to produce both macro-level story arcs (Nasir, James, & Togelius, 2024; Buongiorno et al., 2024; Zhou et al., 2025) and micro-level discourse units, including dialogue and item descriptions (Xie, Cohn, & Lau, 2023; Chen & Jhala, 2025; Fu et al., 2024). The framework demonstrates scalable integration of procedural and AI-driven narrative generation, supporting coherent, immersive game worlds while bridging structured planning and natural language expression.