Multi-Agent Narrative Generation With Commonsense Knowledge-Based Environment Modeling

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Abstract

Authoring behavior narratives for heterogeneous multi-agent virtual humans engaged in collaborative, localized, task-based behaviors can be challenging. Traditional behavior authoring frameworks are either space-centric, behavior-centric or agent-centric. We integrate these approaches into a unique framework to author behavior narratives that progressively satisfy time-varying building-level occupancy specifications, room-level behavior distributions, and agent-level motivations using a prioritized resource allocation system. This approach can generate progressively more complex and plausible narratives that satisfy spatial, behavioral, and social constraints. Also, we propose a method for providing real-time design guidance to the architect that satisfies the affordances supported by the space type and equipment, and supporting multiple-agent behavior simulation based on the generated information.