How the results of this project will benefit society:

Computational creativity has been a goal of artificial intelligence since nearly its inception. But while many interesting models have been developed, and some of these have produced interesting creative works, most have been built on foundations that either don’t scale, or don’t easily scope across different domains, or both. This project will create intelligent comedic performance agents and deploy them both on- and off-line for the enjoyment and illumination of everyday citizens. Secondly, this research will attract, develop, and produce an equally new type of artificial intelligence (AI) researcher whose vision of the mind scopes beyond the confines of a single machine. In particular, the goal is to attract a broader set of students (including the underrepresented group of women in engineering) from communications studies and theater, who want to do research on the machine as a device for communication and creative expression made possible and supported by the mediation of intelligent systems. This is a crucial step in the development of AI as a field, drawing in a next generation of creative and innovative thinkers who will be able to bring new light into the world of semantics and inference while building artifacts with artistic power.

The problem the project is trying to solve:
The goal is to provide a model of creativity and humor that works in much the same way that a professional comedy writer or improvisational performer does. These professionals “mine” their memories for experiences, but they do not merely “free associate.” Instead, they employ a set of conventions or techniques that can be applied and scoped across any domain to produce a specific comedic effect. Modeling human skill in this way will result in a robust and scalable system that is able to provide breadth of coverage (through well understood and scalable information retrieval techniques), without sacrificing the power of control provided by the reasoning system. In effect, it will be funny no matter what it is talking about. This research will improve our understanding of creative processes through an examination of machine-generated content, and the creation of new content and content forms derived from existing resources. It will also support the development of new technologies to support human creativity, in that the resulting models and systems will enable high-level authoring of new kinds of interactive “information” experiences.

How this project will work:
In this project the PI will explore an alternative in which creativity, and in particular humor, is modeled as a layered system of intelligent control, using case-based reasoning, of simple retrieval and filtering mechanisms. Specifically, this is an effort, in the realm of believable comedy agents, in which the issues of control and breadth are decoupled and handled by two very different sorts of systems. For control, the PI will use a variant of case-based planning to provide task-level guidance to content acquisition, evaluation, transformation, combination, and presentation; for breadth, he will employ lexical technologies from information retrieval that will be used to mine online resources spanning a wide variety of domains.

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