

Open Domain Collaborative Storytelling With Say Anything

Reid Swanson and Andrew S. Gordon

Institute for Creative Technologies
University of Southern California
13274 Fiji Way, Marina del Rey, CA 90292 USA
swansonr@ict.usc.edu, gordon@ict.usc.edu

Abstract

In this demonstration we present *Say Anything*, an open domain interactive storytelling application where an author's original story sentences are used to select subsequent sentences from a corpus of millions of stories extracted from Internet weblogs.

Demonstration: Say Anything

Interactive storytelling has become a rich area of research for computer science, interactive-media and the learning sciences. In this demonstration we will present our system, *Say Anything* (Swanson and Gordon 2008). This application uses a different approach from most interactive storytelling systems in that it takes advantage of massive amounts of weblog text to enable completely open domain story generation.

Say Anything breaks from recent interactive storytelling systems in its interaction model as well as its underlying architecture. Unlike most current systems, which use rich immersive 3D virtual environments, the interaction with our system is purely textual. Although 3D virtual environments offer many advantages and possibilities that were not possible when research in this area first began, there are still many reasons that textual environments have significant value (Montfort 2007). In our system, a human and computer interact by taking turns contributing individual sentences of an emerging story. The human user begins the story with the first sentence, which is continued by the computer's response. This process continues cyclically until the user is satisfied (or sufficiently dissatisfied) with their story.

The computer performs three major operations to generate a sentence for the developing story. First, it analyzes lexical and grammatical features of the user's story, including the most recently contributed sentence. This analysis is then used to retrieve the most similar sentence from a database of millions of stories collected from Internet weblogs (Gordon et al. 2007). The measure of similarity is based on standard information retrieval techniques implemented in the Apache Lucene search

engine (Gospodnetic and Hatcher 2004). The system then selects the *next* sentence in the story where the retrieved sentence appears. In addition to this sentence, the user is also presented with nine other sentences that follow from the next most similar sentences, which they can choose from using a drop-down menu. Alternatively, if none of the sentences are satisfactory to the user, they may opt to remove it completely and continue the story by writing another sentence themselves. On the other hand if the user is pleased with the direction the computer is taking the story they can allow the computer to continue generating sentences, one at a time. See Figure 1 for an example story written by one of our users.

Our system is collaborative in the sense that the user and computer are working together to create a single story. It is also collaborative in the sense that our database consists of stories from hundreds of thousands of weblog authors who contribute a small piece to each new story created by our system. Keeping with this collaborative spirit we chose to use a web interface for our system in hopes of spurring a community that can write, share and rate each other's stories. See Figure 2 for an illustration of the main writing interface page of our system.

In the demonstration of our system we will allow users to author their own original stories in real time. In addition, the users will be able to explore the features we have implemented to try to foster a web-based community around this type of simple storytelling game.

References

- Gordon, A., Cao, Q., & Swanson, R. (2007) Automated Story Capture From Internet Weblogs. *Proceedings of the Fourth International Conference on Knowledge Capture*, October 28-31, 2007, Whistler, BC.
- Montfort, N. (2007) Generating narrative variation in interactive fiction. PhD thesis, Philadelphia, PA, USA.
- Otis Gospodnetic, and Erik Hatcher. *Lucene in Action*. In *Action series*. Manning Publications, 2004.
- Swanson, R. & Gordon, A. (2008) *Say Anything: A Massively Collaborative Open Domain Story Writing Companion*. *First International Conference on Interactive Digital Storytelling*, Erfurt, Germany, November 26-29, 2008.

| <i>User written sentence</i> | <i>Matching sentence</i> | <i>Computer generated sentence</i> |
|---|---|---|
| It all started easy enough. | It all started out normal enough. | Got up, had lunch, got ready went to work etc. |
| But then I noticed something very strange. | Then, as I flipped through the test, I realized something very strange. | Mr. Sipiera gave me points on the blank page. |
| Why would he do that? What was he up to? | Why would he do that? | Because he was planning to kill Sonya for her knowledge of the kidnapping plot. |
| I decided to get to Sonya first and run away with her to a Greek island. | We left pretty much after this and took a ferry back to Hong Kong island. | Our original plan to go to Lamma island was ditched, as we had inadvertently spent half the day on Lantau island. |
| But we settled for Corfu, which has a beautiful little hotel on the edge of the old town. | But we settled for the simpler name. | We had dogs (and cats) when I was growing up but my wife and sons have never had a dog before. |
| Corfu was full of cats and dogs, and I ended up having to look at my feet a lot when walking around town. | and i ended up having to save the day. | It's too long to list the details of the whole operation. |
| Sonya would take on the secret identity of a scuba instructor, and I'd be a fisherman. | "Before I even got so far as having a proper breakdown in realizing that fantasy is not reality, I found that I had the secret identity of a beetle." | "But that could have been very useful, right?" |
| It meant we could spend a lot of secret time together on the jetty beyond the coastline. | She does spend a lot of time at the bar where they all hang out. | She has told me some of the men she hangs with have come on to her. |
| I told her I'd kill them just like that old math teacher. | I told her I'd come help her clean and whatever else she needs. | Once she's gone, I'm pretty much on my own. |
| Fishing all day, looking out for the police. | This is bad for the police. | If they stopped to survey the situation they could only see what was there -- none of the men were armed. |
| It was a great secret life. | | |

Figure 1: An example story written with the system showing the turns explicitly along with the matching sentences.

Say Anything

An open domain collaborative story writing companion

Home
Write
Profile
Admin
Logout

Write

About

Untitled

I never expected it to happen.

I want to see Gwen and dance until the wee hours of the morning at the Mercury and then go to Denny's or The Hurricane (if it's still there after 8 years)...I

We haven't done that sort of thing since we were in college, but I thought it would be a lot of fun.

We spent all morning and afternoon in Chicago walking around and checking things out.

I guess the nostalgia all started from being back in our old stomping ground.

so if nothing else, manners are a sort of pander to the weak minded and easily confused.

so if nothing else, manners are a sort of pander to the weak minded and easily confused.

obviously she did not get pregnant...but

That's not really that important as, say, Pat spending HIS money on our trainer or Annalisa buying a plane ticket to Europe.

"You don't look so good."

Also my dads side has decided to put my grandma into a nursing home, and then my grandpa they want him to go assisted living where he can be near my grandma.

I'm about as star struck by a 3rd rate rock show as I'm amazed at a house full of roaches.

You live and you learn.

We finished up there with plenty of time for me to meet up with Greg et al at Kelly's Tavern where I had a coke and a brownie sundae (hence the sugar and caffiene high).

So before I start packing I realize that there is a hamster in the old hamster cage.

When she turned back around I knew I was caught from the way she said my name.

Wr None of these sentences make sense

Write a sentence or generate a new one.

Computer Generated
Take Turn
Finish Story

Figure 2: The main writing interface page. The user can write a new sentence, change a computer generated sentence or allow the computer to continue generating sentences.