Speaker for the Dead

When Gordon Bell and Jim Gemmell wrote about the Total Recall Revolution they discussed Digital Recording, Storage, and Search of a lifetime's archived material. They also proposed the concept of Digital Immortality and support for the frailties of Bio-Memory -- technologies that utilize Personal Digital Archives. Currently there are websites that can centrally store all your digital stuff but it's like stuffing things into a shoebox in a cupboard. Pyramids, Crypts, Libraries, Computers – they are just other places to store stuff with different access mechanisms. Wherever one stores memories, the question is how can ones' experiences take on a life of their own?

Orson Scott Card began to address this with his concept of a "speaker for the dead" which was based on the notion that the residue of anybody's life remains unresolved until someone comes along, a speaker for the dead, to present their life.

What we are proposing is a "curator" for the memorabilia of your life. We have a radical new ChatBot technology that can function as anyone's *speaker for the dead* (even if they are living). Used as the front end to a database of their collected memorabilia and writings, it could engage in a conversation with a family member, a historian, or a child, and present your life at their level.

This ChatBot would be coupled with an avatar of an archived person you can talk to about their life and thoughts. Envisage a ChatBot set up with all the information about a person (and given a virtual body with gestures). This avatar personality can answer questions as if they were the person. It's a way to recreate a living or dead or historical or fictional personage.

A ChatBot is a software program that converses with you as though it were human. The original ChatBot program, Eliza, pretended to be a psychotherapist over 40 years ago. ChatBots remained stuck in a reflective rut until the early 90's when AIML (Artificial Intelligence Markup Language) was invented. This became the dominant open-source language for writing ChatBots. And except for small improvements, the field once again stagnated. There are a number of proprietary ChatBot languages whose interior we know nothing about, but to judge from the one representing IKEA on their website, they are not a serious improvement. And there is a ChatBot in Second Life. So, even though ChatBots are not ready for prime time, they are used to represent major companies around the world.

Avatar Reality is creating the next-generation Second Life virtual world, a gorgeous terra-formed planet called "Blue Mars", which requires advanced hardware just to render. People wander around as avatars in this world, engage in conversation, play games, etc. Avatar Reality wanted users to be in the world continuously, even when they were off-line. So they wanted a replicant who would monitor the chat and gestures

made by a user so that it could replace that person, conversing and interacting with others in the virtual world seamlessly. Avatar Reality spent a quarter of a million dollars reinventing ChatBot technology to enable this vision.

We are now teamed with Virtual Space Experience and TERC for an NSF grant to expand that technology to create “speakers” for famous scientists. TERC’s mission includes support for rich and engaging learning opportunities, and creating virtual scientists to promote and teach the current generation is part of that.

Suzette, written in CHAT- L (CHAT-LANGUAGE), is different from the usual ChatBot. She is fun to talk to and she is not trying to psychoanalyze you. Barely removed from the crèche, Suzette entered last year's Chatterbox Challenge (a worldwide ChatBot contest) and won "Best New Bot". Her 15,000 rules easily compete with the nearly million rules of A.L.I.C.E (an AIML bot) or the 15 million lines of chat stored in Jabberwacky (a non-AIML bot). You can try her out at: http://66.150.245.139/chat/

CHAT-L documentation is at: http://www.bluemarsdev.com/wiki/index.php/Chatbot

Planet9 Studios then licensed this technology for its 3D virtual cities application on the iPhone. You city-hop around the world, encountering ChatBots who know bits and pieces of a mystery. Via conversation you can try to solve this puzzle, and meanwhile learn more about the city and its inhabitants. You can download “RayGun” from Apple’s app store.

So how is this new technology different from AIML? AIML is based purely on pattern matching literal words. It compares scripted patterns against the input until it finds a match and then presents the prerecorded response. This is incredibly limiting, and AIML has excruciatingly over-precise pattern match capabilities. One can not easily author a lot of content, nor can it get anywhere close to finding the meaning of an input.

CHAT-L starts with an extensive and efficient pattern match system. It can represent in one or two rules what might take hundreds or thousands of AIML rules. While AIML matches patterns of words, CHAT-L matches patterns of meanings, addressing both the positive space of what is present in the input, and the negative space of what should not be found there. CHATL makes extensive use of synonym sets to give that humanlike blurry intuitive grasp of related concepts in a correlation engine way. So rather than just being based on a literal keyword search engine or just being based on a knowledge of rules of grammar and digesting dictionaries, it actually can pull pieces of information together and imbue them with meaning and flow and spontaneity as human would do in a real conversation.

CHAT-L then adds in a knowledge representation system. This allows it to record facts about you as it converses with you. These then become available for retrieval later, cross-indexed grammatically and conceptually. This mechanism is what allows it to read your documents and extract meaning that it can then recover during conversation.

Because CHAT-L has a knowledge representation scheme, it can store and use standard inherited knowledge. It could infer that Siamese cats breathe air, since all living animals breath air.

Prior chat technology analyzes your words as it takes them in, finds a matching pattern, and spits out a response. CHAT-L, however, analyzes your sentence from several different perspectives, then combines the results. So one pass decides what kind of input you are making (asking a world question, asking a personal question, volunteering personal information, etc), another generates a response to your input, while another pass can decide on an emotional reaction and add a sentence involving that, and a yet another pass can generate an appropriate transitional phrase, etc. For example, in response to the input
"So what animal do you like most, stupid"
CHAT-L could reply:
"Who are you calling stupid? Do you think my opinion on animals is so useless? I like the wombat, myself".

For developers, CHAT-L has several useful properties beyond being able to concisely represent meaning and store knowledge. In AIML, it is impossible to write an independent topic without carefully hooking it into preceding and follow on topics that then constrain how useful the new topic is. CHAT-L has a modular approach so you can slice and dice your topics as inspiration hits you or as the subject demands. Furthermore, you can write these topics using a simple text editor – not custom tools.

The pattern matching language for CHAT-L is easy to understand and highly visual. So you can look at a piece of script and know whether or not it will match an input directly.

So how can one proceed to build a Speaker for the dead? You could hire a biographer to trawl through one's data, distill the important facts, and then write a script for a ChatBot. Or you could write code to do this automatically. Recently the creator of AIML created a tool that attempts to do this. He used TV scripts to create Capt Kirk automatically. Unfortunately, we find his result utterly disappointing. Partly it's because there isn't enough data in the scripts. And partly it's because he's trying to make it work using AIML. The corresponding techniques would work much better with CHAT-L. So we could start with someone famous chosen as a test case. Buckminster Fuller left a lot of data at Stanford which would make a good starting point. Particularly since he was so wordy, people might actually prefer a ChatBot that could cut to the chase in an answer rather than have to replay his videos.

And it's not just the dead that can use a speaker. Even the living can. Alzheimer's patients may want a surrogate memory they can consult to remind them of themselves. And why settle for static photo albums of your trips? Why not post your avatar on-line to explain where you went, what you ate, what you did and didn't enjoy on your trip to Moscow. In fact, why spend all that money and take the risks of being kidnapped when you could create a ChatBot that could pretend you had actually gone? The possibilities are endless.

Bios:

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