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1 Research Interests

Currently, my general research interests lie in methods for **automating** human-human models of communications for use in **embodied spoken dialogue systems**. To this end, most of the research I have conducted involves some or all of the following steps:

1. Analysis of corpora of human-human or human-computer dialogues from a specific domain such as game-play or chit-chat.

2. Implementation of policies (generally in embodied agents) that automate communication patterns found from above analysis.

3. Experimentation to evaluate and iterate on above implementations.

More specifically, I have worked on systems that have been used for studies investigating **user adaptation** , **synthetic voice selection**, **incremental language processing phenomena**, as well as **dialogue selection policies**. The remainder of this section will discuss the main system I have been developing that serves as the test-bed for the main thrust of my graduate research.

1.1 Mr. Clue

"Mr. Clue", is a dialogue agent that can act as clue-giver in a phrase guessing game (Pincus et al., 2014). His design was motivated from analysis of a human-human corpus composed of audio and video recordings of pairs of humans playing a timed word-guessing game (Paetzel et al., 2014; Pincus and Traum, 2014). Evaluations have been conducted with Mr. Clue to test the impact of embodiment, incremental processing, and clue filtering (Pincus and Traum, 2016) on objective game scores and several subjective measures. The system also motivated a novel TTS evaluation (Pincus et al., 2015). So far, results show that many users enjoy playing the game with Mr Clue, but some deficits remain, several of which have motivated current and on-going system improvements. Future work includes implementing an automatic guesser and exploring the effects of adapting the game play style of both agents to certain user attributes.

2 Future of Spoken Dialog Research

In the coming decade I expect dialogue system research to continue to rely increasingly on leveraging technologies from other fields such as computer-vision, electrical engineering, signal processing and others. Some of these technologies will be used to improve the scalability of dialogue systems so that they are capable of acting more natural in real-time conversations. Other technologies will be leveraged to capture more accurate sensor data as well as methods that output interpretations that allow these systems to infer more context of the various situations they find themselves in. Keeping this in mind reminds us that it is imperative that researchers continue to collaborate within and across disciplines in order to move this field forward by achieving the synergies produced from those collaborations.

3 Suggestions for Discussion

Some possible topics for discussion at the round-table:

- Differences and similarities between non-goal oriented vs goal-oriented Dialogue
- User adaptive dialogue systems
- Dialogue systems for extended interaction

References

Maike Paetzel, David Nicolas Racca, and David Devault. 2014. A multimodal corpus of rapid dialogue games. In *Proceedings of the Ninth International Conference on Language Resources and Evaluation (LREC'14)*, Reykjavik, Iceland, may. European Language Resources Association (ELRA).

Eli Pincus and David Traum. 2014. Towards a multimodal taxonomy of dialogue moves for word-guessing games. In *Proc. of the 10th Workshop on Multimodal Corpora (MMC), Reykjavik, Iceland*. Citeseer.

Eli Pincus and David Traum. 2016. Towards automatic identification of effective clues for team word-guessing games. *To appear in Language Resource and Evaluation Conference (LREC)*.

Eli Pincus, David DeVault, and David Traum. 2014. Mr. clue-a virtual agent that can play word-guessing games. In *Tenth Artificial Intelligence and Interactive Digital Entertainment Conference (AIIDE)*.

Eli Pincus, Kallirroi Georgila, and David Traum. 2015. Which synthetic voice should I choose for an evocative task? In *16th Annual Meeting of the Special Interest Group on Discourse and Dialogue*, page 105.

Biographical Sketch

Eli Pincus is a PhD student at the University of Southern California advised by Professor David Traum. He is also a graduate research assistant in the Natural Dialogue Group at USC's Institute for Creative Technologies. He has worked as a Lab Associate at Disney Research in the Language Based Character Interaction group and a Research Intern at Nuance Communications in the NLP and AI group. Once upon a time, he was a research assistant in the Spoken Language Processing Group at Columbia University. He holds a master's degree in Applied Mathematics from Columbia.