Chelsey Jurado

University of Texas at El Paso
Department of Computer Science
500 West University Ave.
El Paso, TX 79968

cnjurado@miners.utep.edu

1 Research Interests

Like many other introductory students to the computer science field, my expectations consisted of working on implementing algorithms and maintaining systems in an industry setting. Through various internship experiences, I have found myself yearning to do more. At the beginning of my junior year at the University of Texas at El Paso, I began working on research in speech and gaze features based on data collection. Later, I began to work with other students in a team on Embodied Conversational Agents (ECAs). So far, my work in research has shown me the field in which I will pursue my post-graduate work: intelligent systems in immersive environments. Though I do not know exactly what I will focus my future work in, my experiences have shown my interests to be in the study of adaptive conversations for agents.

1.1 Past Work

Under the guidance of Dr. Nigel Ward, I examined the correlation between prosodic features and gaze aversions in video chats (Ward et al., 2016). In dyadic conversations, it is known there are correlations between gaze aversions and speech patterns. In our work, we proposed a model which could predict when someone will be looking away from the interlocutor to improve video chat. The data included gaze behavior data in relations to the monitor, and the recorded conversations. We used leave-one-speaker-out training to create a preliminary model. At the best operation point, the model achieved 42% accuracy.

1.2 Present Work

Currently, my work in the lab focuses on ECAs and immersive environments. Users are able to communicate with the agent with the use of Microsoft Kinect's voice recognition and motion tracking engines. The agent is able to respond to both verbal and gesture responses. The system is, at present, dependent on the use of scripts consisting of what the agent is going to say and how to react verbally to an anticipated response. Our goal is to build rapport with the agent while improving the interaction with the agent. One project I am working on is to study how breathing can influence the interaction between the user and the agent.

1.3 Future Work

In my future work, I aim to improve our existing system by eliminating the system's dependency on scripts. The system would have some basic training from existing conversations, and with each user, will be able to learn and expand its knowledge base. The system would be given a simple goal, depending on the planned use of the agent, and the user will be able to have a conversation within that goal. This will allow for a more natural flow of conversation, and allow the experience to be more immersive and natural in its humanlike properties.

2 Future of Spoken Dialog Research

Dialog systems are becoming more conventional, for example, the rapidly increasing use of Siri, Cortana, and Google Now that have been improving in recent years. These agents are able to answer our questions, assist us in doing simple tasks, and some even have a sense of humor. These systems are limited to only accept a few commands, so as users, we learn to stick to these simple commands so that the conversations remain in a one-statement, one-response style. (Ward and DeVault, 2015) Within the next 10 years, dialog systems will still work to achieve a given goal, but they would be able to recognize a wider range of speech inputs, and will be able to respond accordingly. They will be more general in that they will be useful in multiple situations (e.g., tutoring, entertainment, providing information, etc.) given a goal. For this, as young researchers, we need to ask the following question, how can we efficiently combine learned and designed behaviors?

3 Suggestions for discussion

As a participant of the YRRSDS, I would be excited to meet and learn from the mentors and young researchers

that will be present. Four topics I would suggest to discuss at the event would be:

- Choosing your research topic,
- Possible ways to combine learned and designed behaviors,
- Challenges of open-world dialog, and
- Use of computer vision to manage floor control.

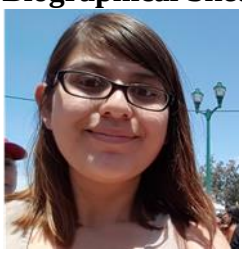
I believe that these discussion points will be both beneficial and interesting for everyone present.

References

Ward, N. G., Jurado, C. N., Garcia, R. A., & Ramos, F. A. (2016, March). On the possibility of predicting gaze aversion to improve video-chat efficiency. In Proceedings of the Ninth Biennial ACM Symposium on Eye Tracking Research & Applications (pp. 267-270). ACM.

Ward, Nigel G., and David DeVault. "Ten challenges in highly-interactive dialog systems." AAAI Spring Symposium on Turn-taking and Coordination in Human-Machine Interaction. 2015.

Biographical Sketch



Chelsey N. Jurado is currently working on receiving her B.S. in Computer Science from the University of Texas at El Paso. After earning her B.S., she plans on continuing her education and pursing a Ph.D. She is currently part of UTEP's Interactive Systems Group as an undergraduate research assistant. She joined the group in 2015 and worked under Dr. Nigel Ward. Currently she is part of the group's Advance Agent Engagement Team, working under Dr. David Novick. As a part of the Advance Agent Engagement Team she helps maintain and improve the embodied conversational agents created.