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Title: SocAoG: Incremental Graph Parsing for Social Relation Inference in Dialogues

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This work is concerned with teaching robots to understand social relations based on dialogues. The goal is to create robots that have emotional intelligence and that are able to infer social cues. The researchers in this paper want to be able to dynamically interpret and infer social relations more accurately than current state-of-the-art methods. They use dynamic relational inference to accomplish this in the study.

Robots that have a better understanding of social relations will be able to act more appropriately in a diverse set of social scenarios. The current method to perform this task are Bert-based models or graph based models. These methods focus on entity relations rather than semantic like the method that the study is attempting to develop. These methods utilize a token graph to find important words. According to the researchers these current models don't have the explicit modeling of the relational consistency among a group of people which helps understand the relationship between two people. This token-graph based approach can't perform dynamic inference.

The unique things that this paper created was a social network graph based on dialogue utterances. The method that is created in this paper is one in which each entity has many relations and attributes that have a potential function and value space for the norms. They then use an And-Or-Graph. This design takes advantage of many different aspects that helps it improve upon the previously utilized methods for performing the same task. The researchers devised an algorithm for graph interference

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this algorithm has probabilistic modeling to perform inferences. Furthermore the graph incrementally parses and repeatedly samples a new parse graph.

The researchers tested the validity of their new model by running experiments that compared the performance of this model to previously utilized methods. The methods that they compared their algorithm with are the Bert, Berts, GDPNet, SimpleRE, SocAoG reduced, and SocAog methods. The results of this testing proved that the SocAoG method was the highest performing method for determining social relationships. The method was slightly better in all categories with regards to its effectiveness and correctness.

The authors have received a number of citations for this work and Liang Qiu is the head because he/she is first among the authors on the published document. I think this research is important because it furthers the advancements in computing technologies to create more intelligent robots that can understand human social dynamics more accurately than could previously be done. This work increments the continuation of human progress by a single step that can further the development of truly conscious robots and systems that can understand the complex connections and dynamics of humans and how they coexist and interact. Understanding the hierarchies that humans have within their societies truly helps develop this sense for robots that may come in the future and have to understand those dynamics to perform certain tasks such as taking care of a house or autonomously interacting with people without the need for human intervention when it gets stumped. This technology will likely be a small part of next generation robots that can interact and blend more fluidly into human

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society than has been seen in the past. It serves as a small stepping stone for further innovation.