Group Projects

NOTE: Choose one of the following 2 options. This assignment will be graded and will contribute 50% to your final grade. It consists of the project report and a corresponding demo.

Option 1: Anger Management

Scenario: The aim of this project is to develop a conversational agent that is able to adapt to the affective behaviour of a user calling into a call centre. (Examples of call-centres are support telephone companies, or any online-shopping companies)

Task:

1) Create interactions for 3 different customers with different complaints. They are angry and you would like them to calm down. The system should be able to hold a conversation for 3 min per customer.
    a. Detect the affect of the user. You can use a rule-driven approach or one using machine learning.
    b. Adapt the robot's verbal and non-verbal behaviour according to the different social dynamics. Remember your aim is to calm the customer down.
2) Evaluate your system's performance:
    a. Prepare ground-truth labels and calculate the average accuracy of the your system's affect detection
    b. Prepare for someone (not a member of your group or someone you brief on the details) to interact with your system. Use the social presence questionnaire in order to evaluate the user's perception of the system (Harms and Biocca, 2004).
3) Write a report:
    a. Submit a group report with the following structure:
        i. Introduction
            1. What is this report about? What are you trying to achieve?
        ii. Motivation:
            1. Why does it make sense to create socially-aware dialog systems? Where are possible application areas? (Please include literature references here)
        iii. Implementation:
            1. Data: Which data did you use in your implementation?
            2. System -Architecture: How does your system architecture look like? Give reasons for the choices you made?
        iv. Results:
            1. Present your Questionnaire results here
        v. Discussion:
            1. Limitations
                a. What did not work and why do you think that is?
                b. What are the strengths of your system and where are the weaknesses.
        vi. Conclusion:
            1. Summarize your results and give suggestions for future work.

Option 2: Math Tutoring

Scenario: The aim of this project is to develop a conversational agent that is able to adapt to the affective behaviour according to the performance and frustration of a user whom the agents teaches a simple math skill. (Examples are: division, percentages etc.)

Task:

4) Create interactions for 3 different students who vary in their performance and level of frustration. Your task is to teach them the math skill but also make them feel good about themselves and give them a sense of achievement. The system should be able to hold a conversation for 3 min per student.
    a. Detect the affect of the student. You can use a rule-driven approach or one using machine learning.
    b. Adapt the robot's verbal and non-verbal behaviour according to the different social dynamics.
5) Evaluate your system's performance:
    a. Prepare ground-truth labels and calculate the average accuracy of the your system's affect detection
    b. Prepare for someone (not a member of your group or someone you brief on the details) to interact with your system. Use the social presence questionnaire in order to evaluate the user's perception of the system (Harms and Biocca, 2004).
6) Write a report:
    a. Submit a group report with the following structure:
        i. Introduction
            1. What is this report about? What are you trying to achieve?
        ii. Motivation:
            1. Why does it make sense to create socially-aware dialog systems? Where are possible application areas? (Please include literature references here)
        iii. Implementation:
            1. Data: Which data did you use in your implementation?
            2. System -Architecture: How does your system architecture look like? Give reasons for the choices you made?
        iv. Results:
            1. Present your Questionnaire results here
        v. Discussion:
            1. Limitations
                a. What did not work and why do you think that is?
                b. What are the strengths of your system and where are the weaknesses.
        vi. Conclusion:
            1. Summarize your results and give suggestions for future work.

Reference: Chad Harms and Frank Biocca. 2004. Internal consistency and reliability of the networked minds measure of social presence. (2004).