Welcome!!!

This survey aims to evaluate an explanation framework designed based on the chat completion of a large language model. The framework is called NavChat and explains the behavior of a machine learning based navigation system for the users of that system. Please consider yourself as one of the users of these navigation systems.

System Description

We trained an agent that finds a path from a starting point to a target point for an aircraft. There are several obstacles on its way and agent has two goals:

1. Finding the shortest path
2. Avoiding the obstacles

Considering the obstacles that it should avoid, a longer path might be a better path than a more direct path.

The agent operates on an episodic basis, with each episode encompassing multiple timesteps. An episode begins when the aircraft is positioned at the starting point and concludes when it either reaches the target or collides with an obstacle or wall. At every timestep, the agent chooses an action which, in our scenario, corresponds to moving to a new location.

One challenge with using Deep Reinforcement Learning (DRL)-based navigation systems is their lack of explainability. Since these systems are powered by deep neural networks, it can be difficult for users to grasp how decisions are made, leading to potential trust issues. To address this, we developed NavChat, an explanation framework that elucidates the agent's behavior and rationalizes its actions. NavChat captures and processes the changes in the state following each action.

In other to evaluate the usefulness of this explanation framework, we designed a user-study. The user-study does not need any prior knowledge about the system. It consists of three steps as follows:

1. Step 1: You will receive a question file that has 7 questions about the given scenario and the same information was provided to our explanation framework. We want you to answer the questions based on the given information. This step is mostly for getting familiar with the system.
2. Step 2: You will receive the questions and answers provided by NavChat. You will be asked to check NavChat’s answers and compare them with yours and rank the degree of your agreement.
3. Step 3: In addition to the questions and answers provided by NavChat that you already have, you will also be provided with an animation showing the movement of the aircraft along with the objective and the obstacles including their areas to avoid. You will again be asked to check NavChat’s answers and rank the degree of your agreement.

If you are interested in continuing and participating in the survey, please show your consent and proceed with answering the following questions:

Agree to participate in the survey:

Agree  Disagree

Please let us know more about you and answer the following questions:

1. How familiar are you with machine learning?

5 point

1. How familiar are you with deep reinforcement learning?

5 point

1. How many times have you used an AI-chatbot during the last 30 days?
2. Which chatbot have you used?
3. How familiar are you with AI-chatbots? 5 point

Level of Familiarity

1 – Not at all familiar

2 – Slightly familiar

3 – Somewhat familiar

4 – Moderately familiar

5 – Extremely familiar