

INVESTIGATING INTENT RECOGNITION THROUGH GAZE AWARENESS IN USER INTERFACES

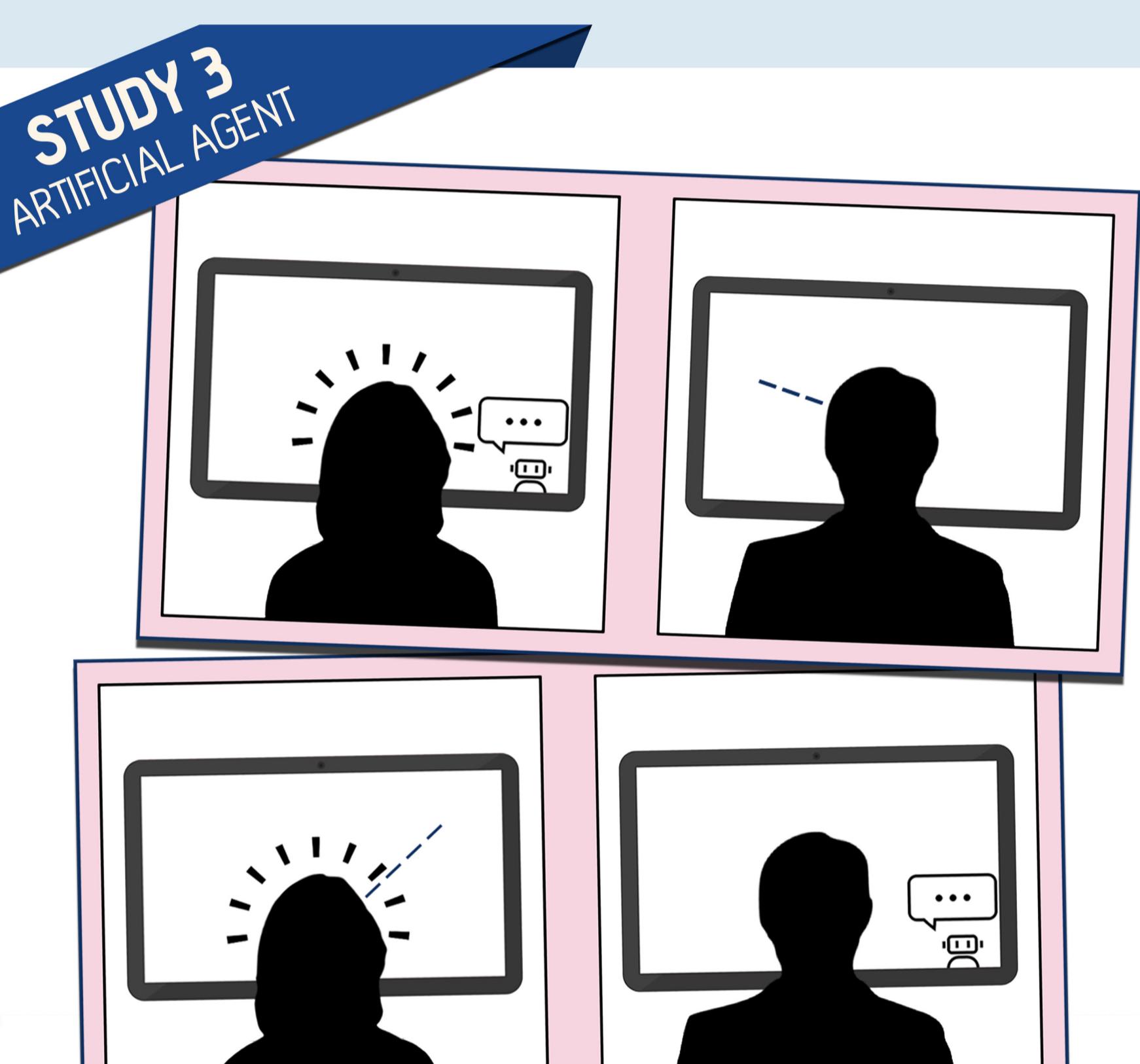
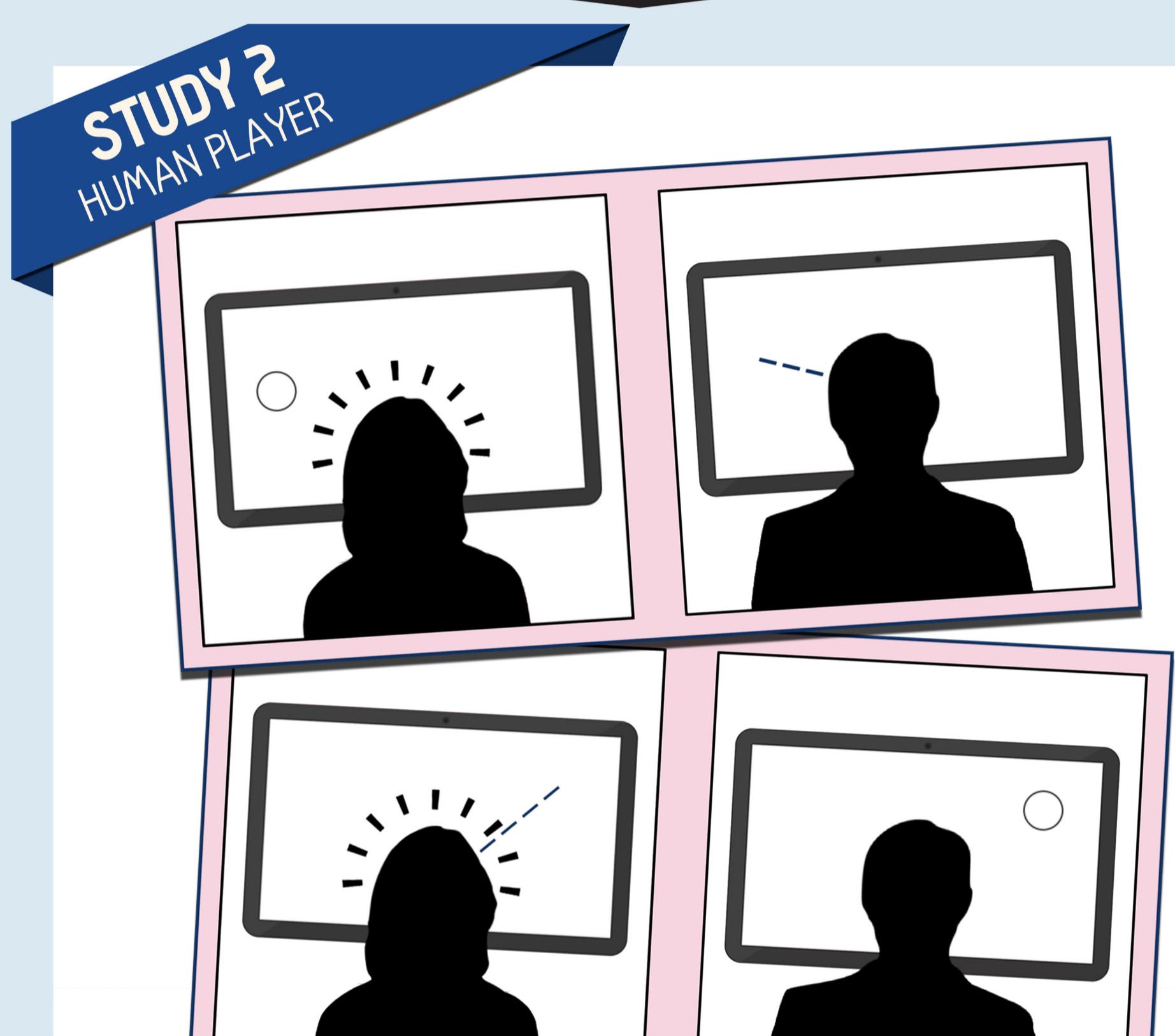
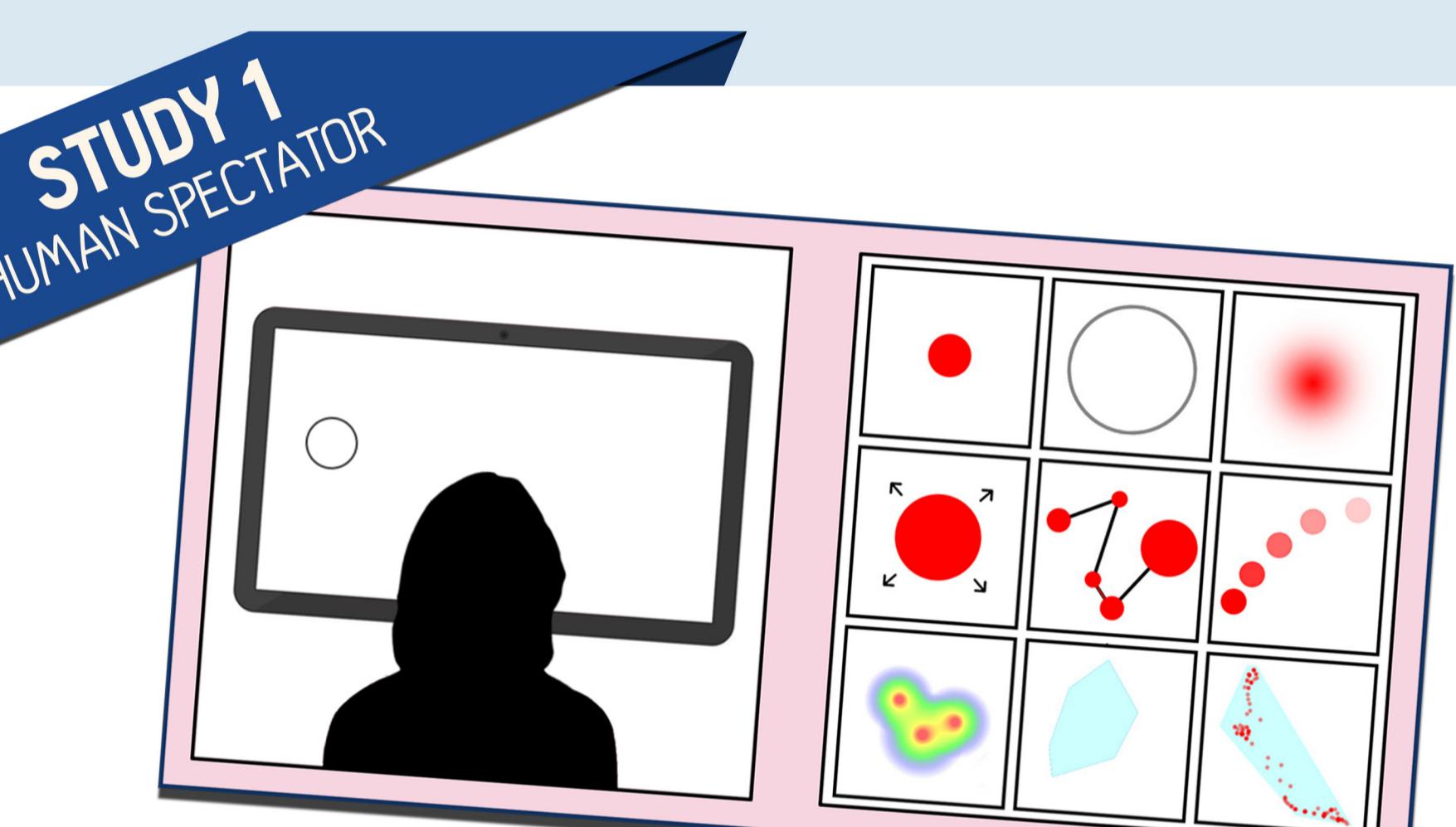
OVERVIEW

This research project explores the effects of gaze awareness by making gaze visible during competitive computer gameplay. Gaze awareness happens naturally in traditional multiplayer gameplay (e.g. board and card games) — typically to infer the intent of opposing players which in turn provide insight into potential strategies. By making gaze explicit, we open numerous questions surrounding intention and deception. This work explores multiple aspects of gaze in our chosen setting including how it is represented, perceived and consumed by different entities. Further, we explore deeper implications of the work such as the role of gaze in both Intelligent UIs and Theory of Mind.

BACKGROUND

Related works have shown that adaptive AI can change aspects of the game based on a player's eye movements and actions to enable positive gameplay experiences [4] or by implementing social gaze signals to increase immersion [3]. Similarly, human players can make real-time gameplay adaptions once gaze information is made visible. Multiplayer strategic games require continuous thought processing and frequent changes to strategies. By tracking eye movements and actions, we can gain a better understanding and insights into the mind of a player [1].

STUDY DESIGN



APPROACH

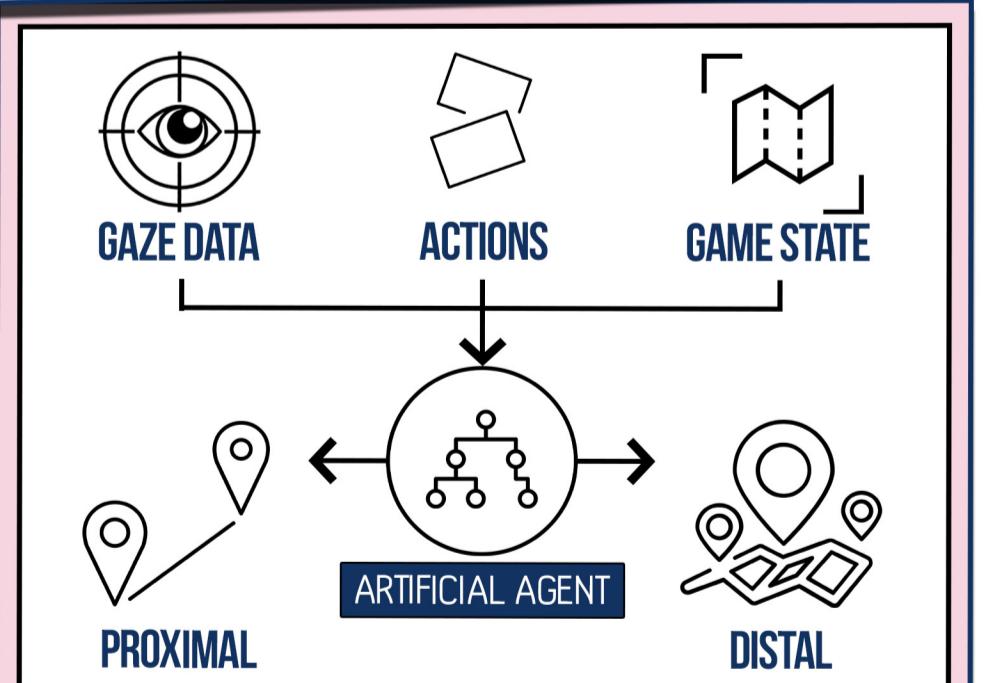


Ticket to Ride is a multiplayer boardgame where each player competes to claim train routes between cities. The gameplay involves a mixture of strategy in which a player must hide from their opponents.

We selected the digital version of the board game *Ticket to Ride* as a use case for the project. For each study, we follow a strict protocol to which we subject participants to carefully considered conditions in order to answer our research questions. As part of the analysis in each study, we measure the performance of participants in uncovering the goals of their opponents by comparing the responses against the ground truth. As the project progresses, we record several data sets to inform the development of a gaze aware artificial agent to be evaluated in our final study.



By analysing the playthrough of the game, we are able to obtain the ground truth in which we can measure the participant's responses against. Ultimately, we are interested in the capabilities of a gaze aware artificial agent to perform 'mind reading' by predicting both proximal and distal intentions better than human beings.



CONTRIBUTIONS

By making gaze explicit and aware to entities in competitive gameplay settings, we open up numerous questions with regards to its broader role in Theory of Mind. This project aims to contribute a better understanding of gaze interaction between players and artificial agents, especially the notions of intention and deception through beliefs. The results from this project will provide new insights for AI and gaze interaction, and as well as playful experiences for gaze input in games [2].

REFERENCES

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