

# Evaluating Perceived Trust from Procedurally Animated Gaze

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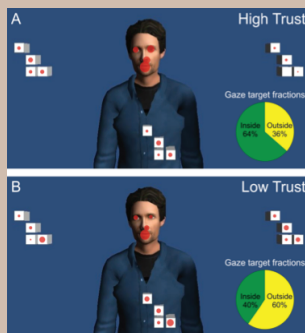
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## Abstract

Adventure role playing games (RPGs) provide players with increasingly expansive worlds, compelling storylines, and meaningful fictional character interactions. Despite the fast-growing richness of these worlds, the majority of interactions between the player and non-player characters (NPCs) still remain scripted. We propose using an NPC's animations to reflect how they feel towards the player and as a proof of concept, investigate the potential for a straightforward gaze model to convey trust.

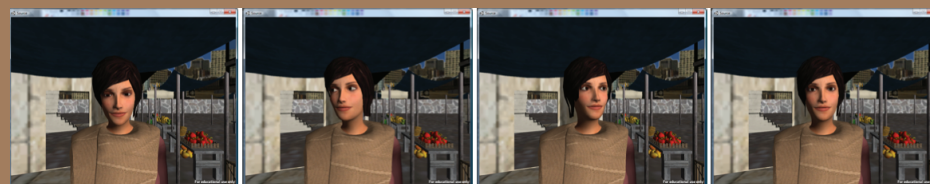
## Gaze and Blink Model

- Studies have shown that direct gaze increased trustworthiness, regardless of mood of the subject
- Derived model whereby the high trust state is characterized by a higher percentage of eye contact, and lower the opposite
- Built plausible gaze and eye movement model based on the physiology literature: implemented a rate of 11.6 blinks per minute (typical spontaneous rate during conversation under normal conditions) and both small (eyes move) and large (eyes and head move) gaze shifts



## Goals

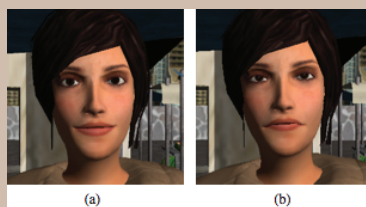
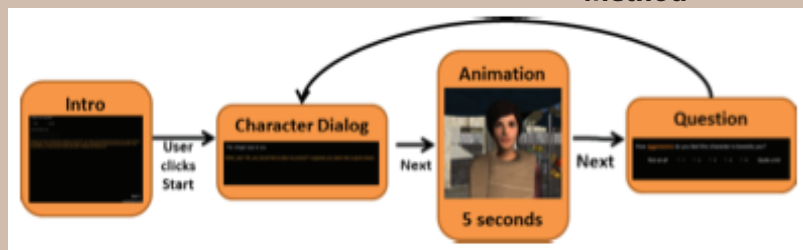
- Convey to users how much an agent trusts them by producing consistent attributions of trust across individuals, and in a short exposure time, such as those typically found in game environments
- Investigate if viewers can distinguish high-trust from low-trust animations, if they associate the animations with trust rather than an unrelated attitude towards the player, and if the expression or scene context of the character affect perceived trust



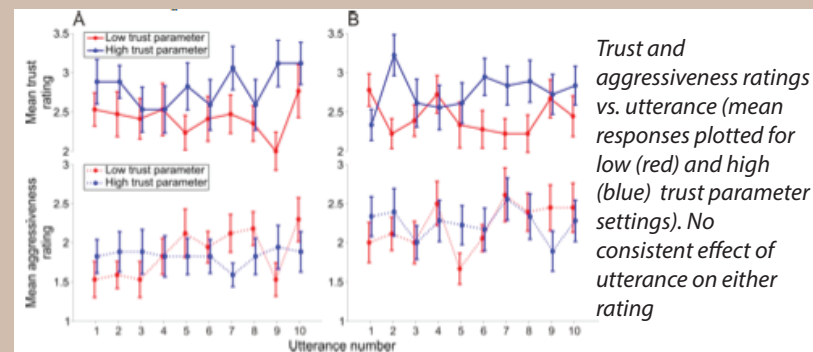
## Results

- Total of 35 participants (17 for friendly, 18 for negative)
- Viewers can distinguish between high and low trust animations, associate the gaze differences specifically with trust and not with an unrelated attitude (aggression), and the effect can hold for different facial expressions and scene contexts
- Viewers can make judgments of trust using a clip length as short as 5 seconds
- Consistent across participants
- Eye gaze determined the perceived trust level

## Method



- 2 perceptual experiments, each with different facial expression: (a) slightly happy, (b) slightly negative
- Trust level manipulated by single parameter within an eye gaze model
- Participants showed an agent whose gaze was driven by the model, then asked to rate how much the agent seemed to trust them
- 2 trust levels, high and low
- Exposure time to each condition was 5 seconds
- 10 different text descriptions to test consistency across different scenario contexts
- For each trial, utterance, condition, and trust level was randomized (each participant observed a total of 40 trials). The two facial expression scenarios were analyzed separately



## Future Work

- Establish how noticeable the effect of eye gaze is to players immersed in a game