The Royal Corgi: A game of social gaze

Mélodie Vidal
Lancaster University
Lancaster, UK
m.vidal@lancaster.ac.uk

Rémi Bismuth
ISART Digital
Paris, France
remi.bismuth@gmail.com

Abstract
The Royal Corgi adds social gaze to the gameplay. In this game of networking, players will need to find ways to convince characters that they are the ideal candidate to become the next Royal Corgi Instructor - but choosing dialogs wisely is not sufficient. Players have to pay attention to the way they look at characters, and find what makes them click. Do they want respect and the player’s full attention? Are they sensitive to what the player seems to be interested in? This game draws players in the game with the characters and demonstrates the potential of gaze to create extremely immersive experiences.

Author Keywords
Eye tracking, Immersion, Social Gaze

ACM Classification Keywords
H.5.m [Information interfaces and presentation (e.g., HCI)]: Miscellaneous.

Introduction
The eyes hold great potential as games controllers: they are good indicators of what a person’s attention is focused on and they are also remarkably fast. However, there has been extremely few games written with eye tracking as the main modality in mind [3], such as
Isokoski’s penguin shooting game [4]. Instead, eye-tracking is often used as a replacement for the original modality in pre-developed games [3], such as controlling commands in World of Warcraft [5], navigating in Mario Bros [7] or orienting the camera or aiming in First-Person Shooter (FPS) games [8].

We are interested in whether eye interactions could be made more natural for gaming. In the same way that a physical controller can be made more ergonomic and intuitive, we aimed to make eye interaction ergonomic in a way.

We noticed that, while the eyes are generally used as a sensor to comprehend the world around us, they also have an influence on the people we interact with. For example, a glance can be made into a stare to intimidate someone. Some cultures show respect by avoiding to look someone important in the eyes, while others consider lack of eye contact a lack of respect [1]. One can also infer what another person is interested in just by observing in which direction their eyes are directed, a process called joint attention [2]. The eyes can thus be seen as a natural controller that we occasionally use, for example as means of intimidation or for a battle of wills.

We harvested this natural behaviour of the eyes to create a new game in which the player’s gaze can generate a wide variety of effects observed in social situation.

Description of the game
The game, named The Royal Corgi, takes place in medieval England. The king has just acquired a new Corgi (a type of dog) which he is fond of, and is looking for an instructor dedicated to his beloved dog. The player impersonates a greedy young lord which desires to gain influence at the court and views the new position as the perfect way to get closer to the king. He will need to gain the trust of the king’s counsellors, which will advise the king on who to appoint as instructor. The game can thus be viewed as a networking game. Players can interact with characters using the keyboard to make different dialog choices, but their eyes also have an influence on the characters’ reactions.

It is a first-person view game and was developed using Unity3D, custom voices and commercially available 3d models and graphics. The implementation of the gaze effects is straightforward but very modular. By defining regions of interest (ROIs), characters can for example be aware whether the player’s gaze is located on their faces, on their bodies, or somewhere else. The amount of time the gaze is located on one ROI can also easily be monitored, which allows to differentiate between a glance and a stare, and several effects can be implemented depending on the length of the gaze or the frequency it switches to another ROI. Characters can thus be made sensitive to eye contact (and its absence) and supposed attention or intention of the player.
Characters and personalities
Characters have different levels of influence, which they will grant to the player if they answer correctly to their questions but also if they perform a certain way with their eyes. Based on findings from psychology, we selected a variety of effects and reactions to gaze, and for each effect we designed a character that exhibits it. The different characters and their reactions to the player’s gaze are:

The Military Advisor. He is a stern character, whose only concern is to make sure the player is devoted to training the corgi to be a defensive dog for the king. He is very influential, but will be offended and dismiss the player if they look away for too long or too many times while they are in a conversation. The player needs to show respect by maintaining eye contact.

The Horse Instructor is also serious, and very proud. She is influential because she is the instructor of the Royal Horse, which she considers is of higher importance than the Royal Corgi. She has different expectations about respect, and requires the player to lower their eyes.

The Archivist is a character with ambition but low self-esteem. The player can make him advocate in their favour to the king if they dominate him and stare him down when he tries to challenge them. If players are not dominant with this character, he will turn his back on them by gaining confidence and will try to get the position for himself.

The Budget Advisor is also quite influential. He just came back from a honeymoon with his new wife, which is next to him. He is a jealous man and he will monitor whether the player glances at his wife while they are talking. He will get angry if this is the case. His dialog mentions his wife, in order to trigger a glance by the player.

The Painter is a jaded character. He is paid by the king to paint countless paintings of the Corgi (visible in the room) but wishes to paint more challenging and inspiring art. He is placed in between two paintings, one of a Corgi and one of classical art. If the player glances more at the Corgi painting while they talk, he will dismiss them, but if they look more at the other one he will acknowledge them as someone who shares his taste and will give them a small amount of influence.

The French Ambassador is a character designed to waste the player’s time. Instead of waiting for the player to engage a conversation with her, she will come to them as soon as they look at her more than a few seconds. She will then start a lengthy conversation about dogs and cheese, which will never change the player’s influence level and can not be interrupted. The only way to escape her is to look away while she talks. She will then turn around, asking whether there is something important happening behind her; Only at that moment, the player can interrupt the conversation and walk away.

Design choices
In order to use the eyes as naturally as possible, we decided on a first person-style game, where the player sees the viewpoint of their character. Furthermore, to exploit a wide range of eye behaviours and techniques, we designed it to be a social game, where players have to talk to a lot of characters and interact with them in order to progress in the game.

Because the game is focused on using the eyes as natural controllers, the interface had to be designed so that players could use their eyes in real-life settings. For this purpose, we recorded voices for the characters instead of displaying dialogs on the screen, which would have required players to read and thus not use their eyes for...
face-to-face interaction. We also designed the dialogs so that players could only answer by ‘yes’ or ‘no’, again to avoid them reading possible answers. There was only a small part of the screen reserved to display the time left and the current influence level of the player (from “pooper scooper” to “top dog”), which was matched by a colour code going progressively from red to green. This is so that players could be aware of their status going up or down using peripheral vision and not diverting their eyes from the main scene (see Figure 4).

Players had to walk up close to a character in order to start a conversation with them, which means that during a conversation, the character’s face was approximately as big as the face of a real person when two people have a face-to-face conversation. While it is ironic that our 3D models could not move their own eyes, we found that the dialogs and the body movements were enough to express the character’s personalities as a first prototype.

The game is designed so that players will need to play it several times in order to get accustomed to the game, know all the personalities and find out how to win. The game takes place only four minutes before the meeting in which the king will decide who will be the Corgi instructor. The player will only be appointed as Corgi instructor if their influence level is higher than a certain threshold. The player is thus pressed by time to talk to (and please) as many influential people as possible in this short time. However, the characters each have different personalities and levels of influence, which the player does not know in advance. There are also other competitors in the room, which only serve as decoy and wastes of time.

Players can move in the environment using the mouse to move their head and the WASD keys to walk; start a conversation with a character by getting close to them and pressing space; interrupt a conversation by pressing space again; answer ‘yes’ or ‘no’ by using the Q and E keys; and finally, they can hear their character’s inner voice by looking at a character and pressing the V key, which will give them insights on who they are and hints on their personalities. For example: “This is the royal Horse instructor. She’s very proud - better make her think I respect her”. The player’s gaze is not visible during the game.

Potential for other games
In a qualitative study with 12 participants, players described strong feelings of immersion and presence in the game. Several participants expressed feelings of embodiment and that they were “acting” their character. As a result, some participants reacted strongly and sometimes counter-intuitively to certain characters. Several participants reported that they had to defend themselves against the Horse Instructor and refused to lower their gaze, while others preferred seeking a friendly figure and enjoyed talking at length with the French Ambassador even if she did not bring them influence.

We foresee that social gaze as ways to interact with virtual characters has potential for various applications. For example, eye-based software is already used in clinical settings for autistic patients [6] and this could further deepen the patient’s understanding of gaze and its impact. We can also imagine adding a layer of immersion for players in games where the eyes play a crucial role, for example in an immersive Poker tournament in order to bluff or train oneself to not give away clues.

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References