Get your head in the game...

Using marker-less face tracking to enhance computer game interaction

State of Affairs.
Recent advances in computer-vision algorithms (such as those made by Seeing Machines) have made it possible to reliably track the position and orientation of a user’s face using nothing more than an inexpensive, store-bought web camera (or the built-in camera found on most modern computers) and a piece of software called FaceAPI.

The Problem.
Despite being more accessible than ever before, face tracking remains to be rarely utilised in popular consumer software.

Our Goal.
We are exploring how face tracking can be utilised in computer games to increase player enjoyment by providing more control, improved immersion, a greater level of realism...

Interaction Ideas.
The work conducted so far has highlighted many promising techniques, including the ability to:
- zoom in by intuitively moving closer to the screen
- peer around corners by simply leaning to one side
- add more life to the game by replicating the realistic appearance of a handheld camera by making the virtual camera mimic the movement of the player’s head
- create a greater sense of visual depth by coupling the perspective of the scene to the user’s head position, thus replicating the appearance of a window

Implications.
Whilst this work presents several exciting possibilities for enhancing gaming, it also has wider implications for other applications, such as 3D modelling software. As such, we are continuing to explore how face tracking can enhance computer interaction in the hope that one day it will be adopted in popular consumer software.

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