

ABSTRACT OF PRESENTATION

We present a PC-based method to simulate the BiOptic concept in general virtual environments. The proposed system captures any video source and magnifies a selected area of the full screen over the original image in real time. The angular position of the magnified area is variable with the heading position, controlled with a head tracker. The final viewing simulates the magnification achieved with a bioptic telescope that can be placed in the gaze direction.

As first approach of the concept, we have used a domestic video capture board feed with a commercial driving simulator video game. The head tracker used is a gyroscopic based InterTrax2. The modified video game is finally projected on a wide angle (90deg) screen where users obtain a realistic view of the simulation.

The system is very flexible for the study of the preferences and needs of potential users of BiOptic, because of the online selection of variables as the magnification of the simulated telescope, its field of view, or its mounting placement in reference to the head. Study of the performance of other features as Simulvision (magnification of a slightly off-axis visual field) is easily feasible.

In addition, this system would also be useful for demonstration and training of the use of BiOptic magnification.