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MG: S.I.M.S. (Simulator-Induced Motion Sickness)
by Douglas Kiang

Bobbing and Heaving

Recently there has been a whole slew of first-person perspective games for the Macintosh, featuring full-screen motion and a dizzying array of moving objects, bobbing and weaving intricately enough to make your head spin. This in turn has caused a new twist on an old problem for some players: a sense of nausea and disorientation while playing the game, not unlike the way you used to feel after that long trip over the river and through the woods to grandma's house, where you promptly crawled out of the back seat, green-faced and swirling head, to vomit on her lawn by way of feeble greeting. Ugh. Now, as arcade games become more and more realistic, the phenomenon of SIMS, or Simulator-Induced Motion Sickness, is a problem that affects more and more players every day.

Pathways Into Darkness, Sensory Overload, Wolfenstein 3D, and Marathon all feature a first person perspective, in which everything scrolls toward the screen as if you were really in the maze or hallway. As you turn your head, everything shifts (more or less smoothly) to show your new perspective. The result is an easily navigable environment that is very convincing in terms of its realism. You almost believe that you are physically running through the various hallways, ducking and turning in reaction to your virtual environment.

Mentally Unbalanced?

Where does motion sickness fit in? Motion sickness is generally caused by conflicting signals sent from your eyes and your inner ear. Your brain becomes confused, and you become nauseous. Your sense of balance is located in your inner ear, in which there is a series of three semicircular fluid-filled canals oriented at right angles to one another along the X, Y, and Z axes. As you move your head, particles within these canals shift, and your brain can sense from their movement exactly how your body is moving around. This is your primary means of sensing your equilibrium and your inner ear functions independently of what your eyes may be telling you (this is why you can usually keep your balance even when your eyes are closed.)

However, your secondary clues also come from your eyes. As you walk down the street, your body may be bouncing up and down but your eyes probably remain fixed on something stationary: the ground, a building you're walking toward, or the horizon. This gives you a sense of how you're moving relative to the horizontal plane. Some first-person perspective games, such as Sensory Overload, feature this very same "bobbing" motion to enhance the

illusion of movement, which looks really cool on a screen—except your inner ear knows you're not moving around at all, even though your eyes tell you that you should be careening down a hallway at full speed. This conflict between your eyes and your inner ear can cause you to become nauseous. Another cause of Simulator-Induced Motion Sickness is the low frame rate of some very detailed simulations. This “jumpiness” just doesn't look right to your eyes and can make you feel terrible. You usually feel this effect most in virtual reality simulations; the refresh rate in many of the older VR helmets is so slow that when you turn your head, the simulation lags a split second behind what you should be seeing.

How to Avoid It

Okay, so now that you know why this happens, what can you do to minimize confusing messages between your eyes and your inner ear? Well, you could close your eyes while you play, but somehow that just takes a lot of the fun out of playing *Pathways into Darkness*. Other games will allow you to turn off the “bobbing” motion of the player as he moves around, which may not look as neat but will reduce most of your movement to a single plane and simplify things for your eyes. You can take motion sickness pills such as Dramamine before an extended gaming session; Dramamine works by temporarily making your inner ear less sensitive to motion, but can also make you really drowsy and might make you feel worse. Since it is a drug, I wouldn't try this too often (unless you're on deadline and have to finish the game in order to write a review.)

You can try to make the actual movement of your body match as closely as possible what you're seeing with your eyes; some professional arcade games do this by providing a sit-down hydraulic cockpit that moves in coordination with the action on the screen. This might be a little ambitious for a home setup, but it is a heck of a lot of fun to use and probably comes as close as a simulation can get to the real thing. If you have a large screen monitor, you can try decreasing the screen size. On a game like *Wolfenstein 3D*, this may also make the game much smoother by allowing a higher frame rate, which will take care of any problems associated with low frame rate. Some players report that playing with the room lights on (in real life, of course) can minimize nausea by further emphasizing to your brain that yes, this is only a game.

Take Five!

Finally, the most effective way to minimize SIMS is simply to save your game and hit cmd-Q. Taking a break every so often gives your eyes a rest, allows your inner ear to re-orient itself, and ensures that you have a life outside of the computer screen. Take a walk outside, water the plants, sit in the hammock. As computer simulations become more and more realistic, Simulator-Induced Motion Sickness may become a greater and greater annoyance to gameplayers. Still, SIMS isn't a permanent condition, and with the Macintosh as with everything else, a little in moderation beats overindulgence any day of the week.

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