Twitter Thread by Zach Phillips



Zach Phillips
@zachphillips



Here's a thread on why 24 is the best number of frames per second for everything but sports and gaming. It has to do with a fundamentally broken default assumption about the motion picture medium. ■

Many of us weren't home for the holidays to help loved ones turn off motion smoothing. SlippySmoothSparkleMotion+ is still on by default (even as @RianJohnson and others keep up the good fight). There's a debate about why motion smoothing is so offensive. I'm here to settle it.

Before we get to the answer... No, the "soap opera effect" isn't a result of historical conditioning. 24 frames per second isn't better because "that's just what we're used to in movies." It's not about some arbitrary association.

A few movies who shall not be named have come out in recent years at 48 frames per second. The crowd response was universal hatred, thank god, but Hollywood will probably keep trying... I mean, it seems like MORE frames per second should be BETTER, right? More REALISTIC... right?

This is the broken assumption that most people have about movies: That the reproduction quality is supposed to be like reality—that the closer it gets to reality, the better. Under this assumption, 120fps would be best, as it's close to the resolvable limit of our eyes/brains.

But when people watch a movie at *just* 48fps (2x the magical 24) they ask "Why do I hate this? Why do I feel so yucky and uncomfortable. And why is that actor wearing so much weird makeup?" The whole movie viewing experience is broken. Why is this?

It's because motion pictures are nothing like reality. The medium is simply not designed that way. You sit in a chair and look at a rectangle cut out of a view through a lens at a focal length different from your eyes. Then, every 2-5 seconds, IT CUTS TO A TOTALLY DIFFERENT VIEW.

Optimally experiencing a movie requires that the viewer be in a dream-like state, able to suspend disbelief with regard to the drama of the characters and the the dangers in the world of the film WHILE rapidly parsing this wildly complex visual language of cutting.

24 frames per second is the perfect framerate because it's JUST at the cadence where every kind of motion can be adequately represented while staying as far away as possible from our eyes' true ability to perceive motion. This allows us to experience the medium as intended.

The Uncanny Valley doesn't just apply to a robot. It applies to the experience of a medium as well. The closer a motion picture's framerate approaches our perceptual capability, the more dominant the subtle details of our visual systems become, taking us OUT of the movie.

In terms of resolution, there's a limit to what our eyes can resolve on a rectangle some distance from our face and we more or less reached that limit the moment film was invented (we still haven't done better than film, an argument for another thread). But not so with motion.

SlideySmoothPuddingMotion+ TV-makers and movie studios trying to come up with justifications for the digital theatres (their own coffins) that they designed will persist in their attempts to break the film medium with higher frame rates, but in the end, they will be defeated.