

Explore – Impact of Computing Innovations

Written Response Submission Template

Please see [Assessment Overview and Performance Task Directions for Student](#) for the task directions and recommended word counts.

Computational Artifact

2a)

The computing innovation I researched is Industrial Light & Magic's (ILM) "Stagecraft" that they made in collaboration with Epic (Unreal Engine). Stagecraft is a 21 foot high, 75 foot diameter volume that is surrounded by LED panels which utilize Unreal Engine to put the stage into any location the director desires, and allows the creatives to make changes instantly. It also tracks the cameras exact position to adjust the angle of the scene on the displays. My artifact illustrates a few angles of the volume mid use and labels key features within it.

2b)

To make the artifact I used mostly photoshop to compile the images and information together. I really wanted to show off the stage being used and then on top of it added specific details regarding elements of the pictures.

Computing Innovation

2c)

There are many beneficial effects of this technology, and in more fields than just filmmaking. The first one being this brings the VFX normally done in post, directly onto the set. The director, DP, producers and actors can all see the environment that they are filming and can make creative decisions then and there and allows the actors to do a more genuine performance. It also creates a more realistic image. As good as VFX artists are nowadays, nothing beats something that comes straight out of camera almost perfectly. The lighting and reflections on the actors and props are real which gives a lot of freedom to what can be done, as well as all of this makes post-production a lot cheaper. As this technology develops it will also end up falling into the hands of consumers, like film students and indie filmmakers and will allow many people to do more than they ever have been able to before. Those big film studios are also pushing money into the innovation of the tech around it, examples like VR development, real time game engines, display technology, all of which will positively impact consumers. From what I've listed there aren't many harmful effects, one big concern could be VFX houses losing business but this tech doesn't specifically replace them in anyway as this doesn't do everything. The biggest harm would be price. Not much is said publicly about specific price, but from what we know about the tech, it would be a down payment of somewhere around half a million dollars.

2d)

The innovation uses lots of data in many ways. Firstly the system inputs the cameras position in the volume and the position of its view frustum. It takes this data and outputs the same image that a virtual camera would see in the game engine with the same position. Meanwhile the rest of the world is rendered flat onto the rest of the display. The game engine itself could be seen as another input as it could be running simulations of things occurring in the world. There is a lot of data flow needed in general to push the pixels of these massive displays and keep them running at 60hertz. There could be a concern for data storage as these game worlds are created with extremely high resolution photo realistic images and high poly models. This theoretically could take terabytes per scene.

References

2e)

“Groundbreaking LED Stage Production Technology Created for Hit Lucasfilm Series 'The Mandalorian'.” *Industrial Light & Magic*, www.ilm.com/hatsrabbits/virtual-production-on-the-mandalorian/.

“How Lucasfilm's New ‘Stagecraft’ Tech Brought 'The Mandalorian' to Life and May Change the Future of TV.” */Film*, 20 Nov. 2019, www.slashfilm.com/the-mandalorian-stagecraft/.

“Unreal Engine in-Camera VFX: a behind-the-Scenes Look.” *Unreal Engine*, 12 Nov. 2019, www.unrealengine.com/en-US/spotlights/unreal-engine-in-camera-vfx-a-behind-the-scenes-look.

Coldewey, Devin. “How 'The Mandalorian' and ILM Invisibly Reinvented Film and TV Production.” *TechCrunch*, TechCrunch, 20 Feb. 2020, www.techcrunch.com/2020/02/20/how-the-mandalorian-and-ilm-invisibly-reinvented-film-and-tv-production/.

“The Virtual Production of The Mandalorian, Season One” ILMVFX, Industrial Light & Magic, 20 Feb, 2020, <https://www.youtube.com/watch?v=gUnxzVOs3rk>