

LAB EXERCISE #3

1) Reading of Interactive Media Systems and Applications

The article talks about visual interactive media systems as digital media is evolving and becoming part of our daily needs, the demand along with powerful portable devices allow us to receive, stream or even interact with real time digital video and related data. The article also mentions the important inclusion that digital media did on broad access, being able to produce and distribute content on a secure cheaper manner. One of the points made was the vast enhanced experience that interactive media can provide to a customer far superior to analog broadcast, along with feedback the user experience is more engaged and it can provide more customized experience to each viewer. There are several interactive methods to use digital media, among the ones covered in the article are mobile-to-cloud operating on mobile platforms, the transport compressing and encoding of digital video, the real time graphical rendering and frame annotation and applications on the field of Augmented Reality. Note to mention that my favorite part was reading the closing statement to the paragraph where states that the world of interactive media systems and applications must be mobile (follow a human, given the human perspective), must include analytics from the cloud (enhanced “customized” user experience based on common relational data) and must engage but not distracted the user, which I believe to be one of the most important and fundamental purposes of interactive systems, to provide relevant information free from distraction in real time.

The article goes over hands-on examples equivalent to the ones we performed on past assignments along with the famous Dr. Spock DCT transformation, it explains the basis for compress/uncompressed digital video along with the importance of lossless frame transformation for computer vision. The article then covers the opposite perspective with an overview of rendering and how are we capable of generating a photorealistic image from data containing the scene description. After explaining how render is used to generate content the article ends with a comparison on augmented reality, which is not only a matter of rendering but instead interacting with the viewer perspective using the viewer perspective to base from, it also mentions the great enhanced experience we can have in augmented reality using machine vision solutions to enhance the user experience and provide information on data that is either not visible by the human sight spectrum or is not as fast calculated by the human brain, this combined solution provide the best of both worlds and enhance the viewer experience, relating to the concept of interaction on augmented reality.

The lab assignment asked us about our view on indistinguishable real video from generated from rendered video, in my opinion this is probably an inevitable phase as computer vision evolves. I believe that one day we will be able to render/generate video motion that is perfectly detailed and overall indistinguishable to the human eye, as a matter of fact I believe that this is already possible accomplished on still frames (or painted pictures). I read an article mentioning that due to the nature of the human physiology we are very critical when it comes to comparing to other rendered humanoid faces, we are able to discern the difference between real vs. generated human faces (3D) which is a challenge on the digital animation industry. But assuming the technology will reach its peak and that we (as humans) will not be able to distinguish real vs digitally generated (3D) video motion I can see issues

relating to any form of validation or authenticity that surrounds people being observed or impersonated as someone else. The only “concern” I can imagine for the human society of this era is that video could no longer be used as a form of authentication or validation that subject observed really is the subject or if it is an acted rendered projection of the subject. I also do believe that if we reach such achievement on technology our society would be better prepared and maybe more evolved to use this to enhance the human potential opposed to the concern of human privacy.

Overall another great article, directly related to concepts observed on our Computer Vision course, covering everything from digital media to interactive media systems. I can relate to the crowd-source video analytics part (somewhat) where I recently submitted and modified a Google Maps entry on a nearby bike path that was recently changed to accommodate a roundabout. The changes were not yet reflected on Google Maps as described, so an active member of the crowd-source Google Maps community I was able to input a request, pass through an approval process (which required sources/pictures) and within days the changes to the bike path was approved and it is now routable if your destination happens to cross the area, I’m sure it’s not a big deal but it is just another good example how interactive media systems can make good use of crowd-sourcing.