3D movies in your living room -- without the glasses

August 14 2012

New television screens will make it possible for viewers to enjoy three-dimensional television programming without those bothersome 3D glasses. Still, the content has been rather lacking – until now. A new technology will soon be adapting conventional 3D films to the new displays in real time. Researchers will unveil this technology in Berlin at this year's IFA trade show.

Lounging on a sofa while watching a 3D movie is an exquisite pleasure for many film fans. Be that as it may, those nettlesome 3D glasses might diminish the fun somewhat. That's why television manufacturers are working on displays that can recreate the spellbinding magic of three-dimensional television images – without the glasses. Though prototypes of these TV screens already exist, consumers will not have to wait much longer for the market introduction of these autostereoscopic displays. Neverthe-less, the content might be a bit problematic: The 3D movies currently available on Blu-ray are based on two different perspectives, i.e., two images, one for each eye. However, autostereoscopic displays need five to ten views of the same scene (depending on the type). In the future, the number will probably be even more. This is because these displays have to present a three-dimensional image in such a manner that it can be seen from different angles – indeed, there is more than one place to sit on a sofa, and you should be able to get the same three dimensional impressions from any position.

Researchers at Fraunhofer Institute for Telecommunications, Heinrich-Hertz Institute, HHI in Berlin recently developed a technology that

converts a Blu-ray's existing 3D content in a manner that enables them to be shown on autostereoscopic displays. "We take the existing two images and generate a depth map – that is to say, a map that assigns a specific distance from the camera to each object," says Christian Riechert, research fellow at HHI. "From there we compute any of several intermediate views by applying depth image-based rendering techniques. And here's the really neat thing: The process operates on a fully automated basis, and in real time." Previous systems were only capable of generating such depth maps at a dramatically slower pace; sometimes they even required manual adaption. Real-time conversion, by contrast, is like simultaneous interpretation: The viewer inserts a 3D Blu-ray disc, gets comfortable in front of the TV screen and enjoys the movie – without the glasses. Meanwhile, a hardware component estimates the depth map in the background and generates the requisite views. The viewer is aware of nothing: He or she can fast forward or rewind the movie, start it, stop it – and all with the same outstanding quality. The flickering that could appear on the edges of objects – something that happens due to imprecise estimations – is imperceptible here.

The researchers have already finished the software that converts these data. In the next step, the scientists, working in collaboration with industry partners, intend to port it onto a hardware product so that it can be integrated into televisions. Nevertheless, it will still take at least another calendar year before the technology hits department store shelves. At the IFA trade show in Berlin from August 31 to September 5 the technology can be tested: An autostereoscopic 3D screen will be set up right in front of a sofa corner at Booth 10 in Hall 11.1. Visitors can select from the various 3D Blu-ray discs, and as the disc is played, the system will convert it live: the visitors just relax and enjoy the movie – without the glasses.

Provided by Fraunhofer-Gesellschaft

Citation: 3D movies in your living room -- without the glasses (2012, August 14) retrieved 2 May 2024 from https://phys.org/news/2012-08-3d-movies-room-glasses.html