

Cycle de Conférences du Laboratoire MIPS 2014-2015

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SEE THROUGH OPTICS FOR HEAD MOUNTED DISPLAYS AND SMART GLASSES

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HUDs (Head Up Displays) and HMDs (Helmet Mounted Displays) have been with us for a few decades, providing exceptional optical performances for specialized defense applications. On the other hand, consumer electronics HMDs (Head Mounted Displays) have been lingering as personal gadgets for a mere decade. But recently, major companies have launched consumer compelling head mounted display solutions integrating both hardware, operating system as well as content, unlocking the decade long consumer HMD status-quo. As a result, we are witnessing today a fragmentation of the HMD market into various categories which have their very own specificity in terms of functionality, hardware and content. Such fragmentation is responsible for defining new distinct market segments such as consumer near to eye displays, social smart glasses, gaming headsets, as well as professional (engineering and technical) HMDs, specialized (medical, law enforcement, firefighting) HMDs and of course the previously existing defense market. We will be reviewing the different type of optical hardware used in such devices.



Figure 1. Head Mounted Displays in Hollywood :-)



Bernard Kress graduated at Ecole Nationale Supérieure de Physique de Strasbourg (ENSPS) in 1991, and defended his PhD under supervision of Pr Patrick Meyruies at Laboratoire des Systèmes Photoniques of Université Louis Pasteur Strasbourg in 1997.

For over 20 years, Bernard Kress has made significant scientific contributions as researcher, professor, consultant, advisor, instructor, and author, making major contributions to digital micro-optical systems for consumer electronics, generating IP, and teaching and transferring technological solutions to industry. Many of the world's largest producers of optics and photonics products have consulted with him on a wide range of optics and photonics technologies including; laser materials processing, optical security, optical telecom/datacom, optical data storage, optical computing, optical motion sensors, pico- projectors, light emitting diode displays, optical gesture sensing, three-dimensional remote sensing, digital imaging processing, and biotechnology sensors.

Bernard Kress has generated more than 30 international granted patents. He has published four books, a book chapter, 102 refereed publications and proceedings, and numerous technical publications. He has also been Involved in European Research Projects in Micro-Optics including the Eureka Flat Optical Technology and Applications (FOTA) Project and the Network for Excellence in Micro-Optics (NEMO) Project. Bernard Kress is currently the Optics Lead in the Advanced Technology Team at Google Glass Project.