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Proposal for a New Emoji: Face with a Head-mounted Display

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Abstract

The intention of this proposal is to advocate for the inclusion of a new emoji, a face with a head-mounted display, as a Unicode emoji character. The emoji is meant to represent the experiences of roughly 170MM people that will don a head-mounted display (HMD) this year. These HMDs will deliver virtual, augmented, and mixed reality content enabling people to solve tough problems in military and aerospace, as well enjoy social entertainment with friends and family—all using an extension of reality.[1] A face with head-mounted display emoji can capture the essence of all these new forms of working and communicating.

Figures 1 and 2. *Color and black/white images of a potential face with a head-mounted display emoji. Created by Ian Zhang and licensed under* Creative Commons 1.0 Universal.

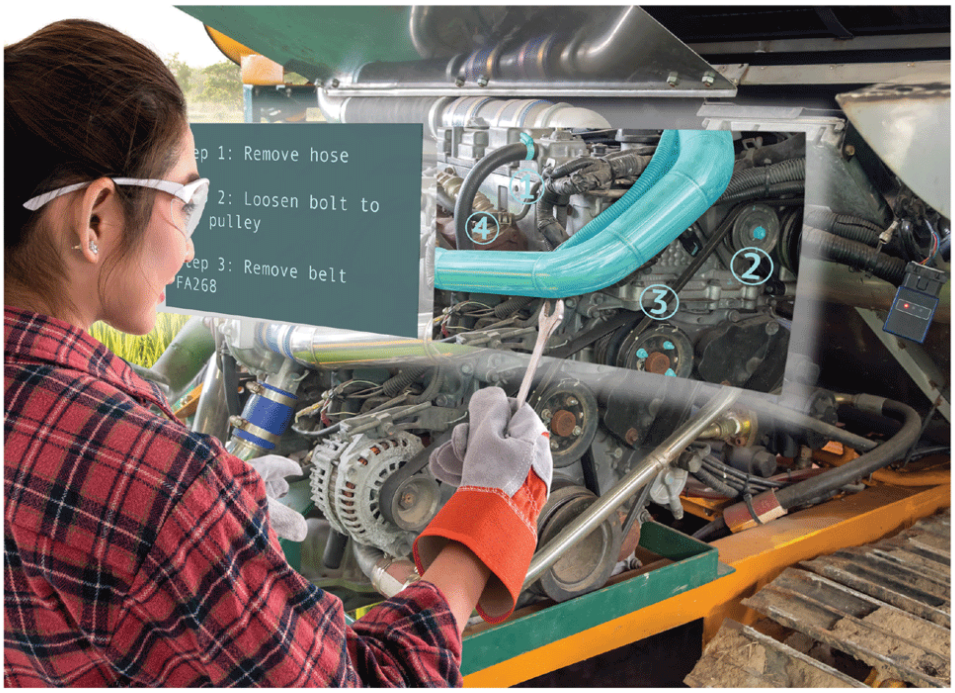
Section I. *Introduction*

Extended reality represents the entire spectrum of experiences—from those that rely mostly on the "real" environment with augmented features, to experiences that are completely immersed in a "virtual" environment. Extended reality experiences can take on many forms, but all of them require wearing a head-mounted display. While most associate extended reality with the gaming community, the defense, aerospace, manufacturing, healthcare, and travel industries are actually driving most of the estimated $17.8B global spend this year.[2]

1 https://www.statista.com/statistics/426469/active-virtual-reality-users-worldwide/
2 https://www.idc.com/getdoc.jsp?containerId=prUS43248817

Figure 3. *Trauma surgeon Sarah Murthi tests an AR headset prototype, which uses a Microsoft HoloLens and custom software with an ultrasound, on a volunteer 'patient'."* [3]

Figure 1. What augmented reality looks like



An artist's conception of an AR display, which projects digital information onto an individual's view of the real world. In this case, a farmer views directions for fixing a tractor engine.

Figure 4.[4]

[3] https://www.smithsonianmag.com/innovation/augmented-reality-could-change-health-care-or-be-faddish-dud-180962945/#mkgqHfpkPi0AoHOF.99
[4] https://www2.deloitte.com/insights/us/en/deloitte-review/issue-21/augmented-reality-at-workplace.html

Across the world, manufacturing engineers are strapping on HMDs to do guided builds of jet engines, military personnel are utilizing AR fields to speed up training regimens, and medical students are analyzing live overlays from their smart lenses to perform more accurate surgeries. This is all in addition to the massive entertainment market that is driving an immersive, social, happy community of gamers.

Extended reality not only penetrates well across all segments of global business and entertainment, the technology is culturally-agnostic, with roughly a 3-5% market adoption rate across the Americas, APAC, and EMEA. In some verticals, like gaming, the adoption rate is as high as 12%.[5]

The economic significance of the technology is clear, but perhaps the path to healing that extended reality provides is having the greatest cultural impact.[6] Many folks who are mentally or physically disabled now use complete virtual immersion as a form of therapy, with growing support from the scientific community.[7]

Figure 5. *A student in a wheelchair at Aalto University in Finland tests out a virtual reality experience.*[8]

[5] https://www.researchnester.com/reports/virtual-reality-market-global-demand-analysis-opportunity-outlook-2021/160

[6] https://venturebeat.com/2018/02/10/vr-can-already-help-people-heal-and-its-just-the-beginning/

[7] https://www.sciencedaily.com/releases/2017/05/170531102921.htm

[8] https://www.npr.org/sections/health-shots/2015/10/22/450573400/affordable-virtual-reality-opens-new-worlds-for-people-with-disabilities

As the world continues to benefit from extended reality, there is mounting evidence that strapping on a head mounted display is associated with efficiency, healing, and happiness—all depending on which of the 170MM people uses one this year.

Section II. *Selection Factors - Inclusion*

Section II.A. *Compatibility*

Web-based research does not reveal any keyboard-based applications supporting an extended reality emoji. However, *Giphy* and *Pinterest* feature many such illustrations already, demonstrating a growing need to express the experience of wearing HMDs in emoji form.[9][10]

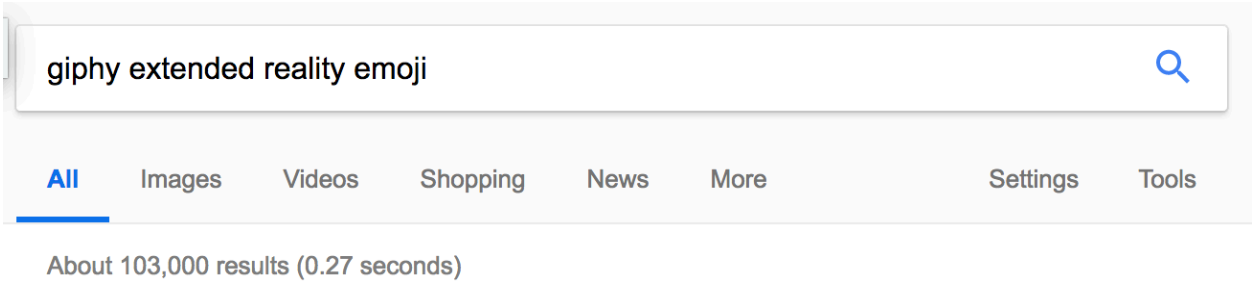


Figure 5. *Google search on 25 March 2018 for Giphy and extended reality emoji.*

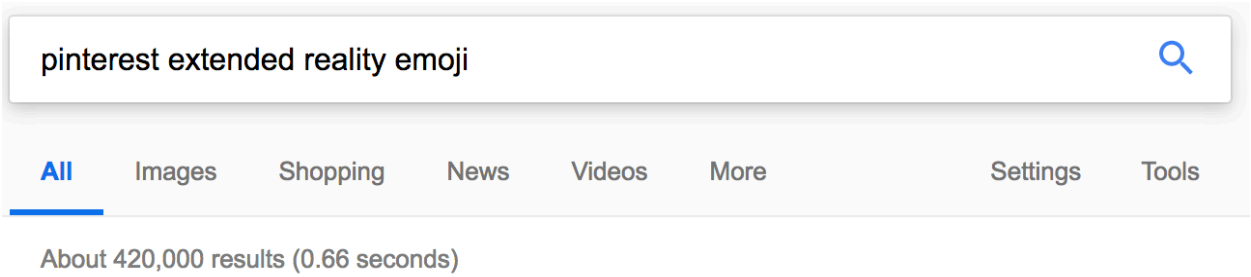


Figure 6. *Google search on 25 March 2018 for Pinterest and extended reality emoji.*

[9] https://giphy.com/gifs/producthunt-vr-virtual-reality-oculus-xThuWelWWEtlq6ENDG

[10] https://www.pinterest.com/pin/421438477611339360/

Section II.B. *Expected Usage Level*

Section II.B.1. *Frequency*

The authors may need to iterate with the Unicode Consortium on comparable searches. There currently does not seem to be a reference emoji that would enable an accurate comparison against the proposed extended reality emoji, which is understandable given the technology and use case. The reference initially selected is "goggles," since the authors believe this is the closest emoji that captures the essence of a "wearable." Searching for Samsung VR and Google VR headset on Google also brings up "VR goggles" as a suggested term.

Search Criteria	Extended Reality	Goggles
Google Search	120MM	52.6MM
Bing Search	49.3MM	32.2MM
Youtube Search	3.3MM	1.3MM
Google Trends (Web)	Underperform. See Appendix A	Appendix A
Google Trends (Image)	Underperform. See Appendix A	Appendix A
Google Trends (Web) against indexed search term "virtual reality"	Outperform. See Appendix B	Appendix B
Google Trends (Image) against indexed search term "virtual reality"	Outperform. See Appendix B	Appendix B

Table 1. Search criteria comparison, all figures represent numbers in millions.

Overall, the authors find text-based searches for extended reality outperform searches for goggles by an average factor of 2.08X, showcasing the massive surge in popularity. However, one interesting note is that the extended reality trends search vastly underperforms the goggles trends search.

When the "extended reality" search term is altered to "virtual reality," the trends data matches up against the expected text-based search results. In this comparison the authors notice an average of 50-100x outperformance of the "goggles" search term. Further, searching on "augmented reality," another common term that rolls up under the umbrella term of extended reality, shows an equivalent outperformance of "goggles." To summarize, virtual and augmented reality (two sub-categories of extended reality) independently outperform the goggles trends search.

As shown in Appendix B, the authors believe that Google has not yet indexed the extended reality search topic, perhaps due to the novelty of the term. When complete,

the trend should vastly outperform the term “goggles” based on the data available for virtual and augmented reality search trends.

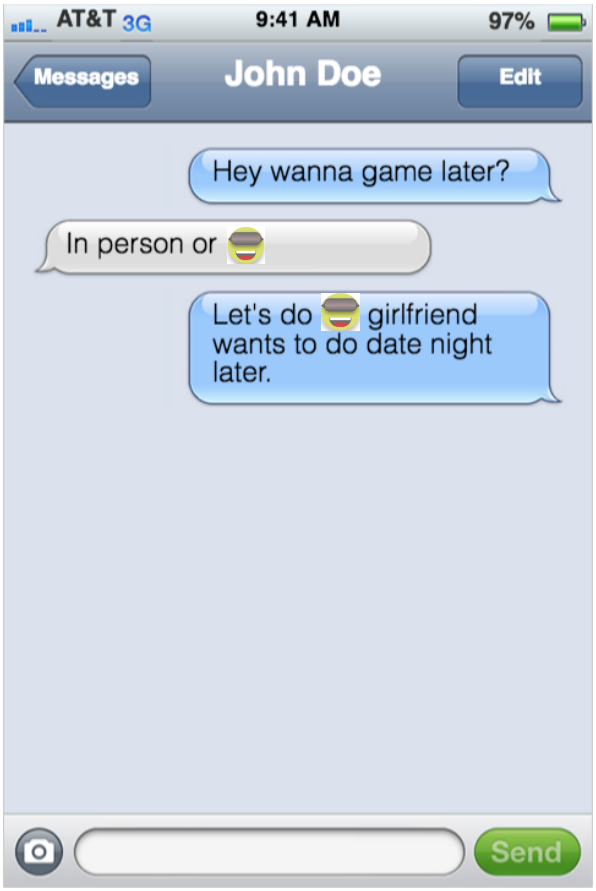
All screenshots for extended reality against goggles are available in Appendix A.

All screenshots for virtual reality and augmented reality against goggles are available in Appendix B.

Section II.B.2. *Multiple usages*

The usage of a face with head-mounted display is designed to cover all representations of extended reality, as they all require some sort of HMD. The use cases can stretch from augmented layering and browsing, any sort of wearable computing, mixed reality, alternate reality gaming, fully virtual environments, or smart glasses.[11] As mentioned in the Introduction, utilizing an HMD is also increasingly representative of peoples’ time spent in training and physical therapy, and the happiness, escapism, and efficiency that can result. A few potential use cases are suggested below:

Social/Gaming



Travel and Education

[11] https://en.wikipedia.org/wiki/Extended_reality

Section II.C. *Image Distinctiveness*

The closest emojis to a face with a head-mounted display would be the nerd face, face with sunglasses, and the goggles. None of these emoji has the distinctive, proposed HMD.




Section III. *Selection Factors - Exclusion*

The face with head-mounted display is specifically designed as a general representation of all extended reality experiences, and as mentioned previously is culture-agnostic. There is no existing representation of any head-mounted display in the current emoji set, nor does the proposal represent any sort of logo, brand, icon, signage, specific person, or a deity.

While there may be some concern that extended reality is just a passing fad, a survey of the industry indicates that HMD and the experiences they enable are here to stay.[12] [13][14][15]

Section IV. *Sort location*

The proposed location for a face with head-mounted display is in the Smileys & People category, immediately after the nerd face emoji.

[12] https://www.prnewswire.com/news-releases/global-mobile-augmented-reality-market---expected-to-rise-at-a-cagr-of-about-65-during-2017-2023-300568447.html

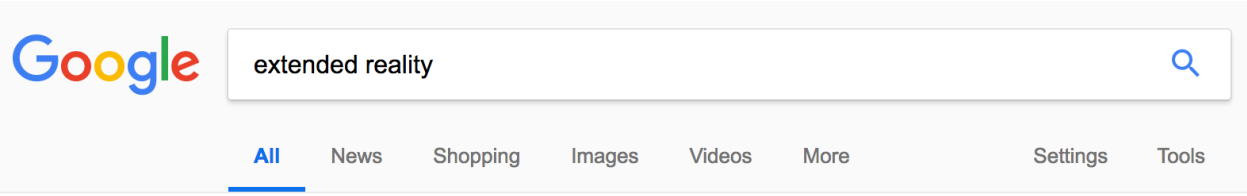
[13] https://techcrunch.com/2017/01/11/the-reality-of-vrar-growth/

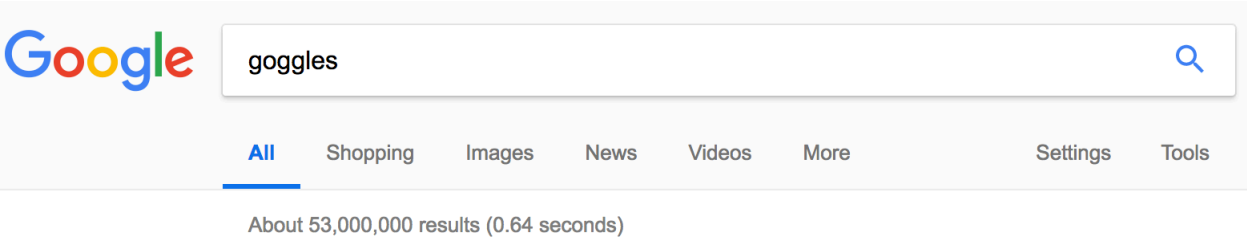
[14] http://www.goldmansachs.com/our-thinking/pages/technology-driving-innovation-folder/virtual-and-augmented-reality/report.pdf

[15] http://fortune.com/2015/04/25/augmented-reality-virtual-reality/

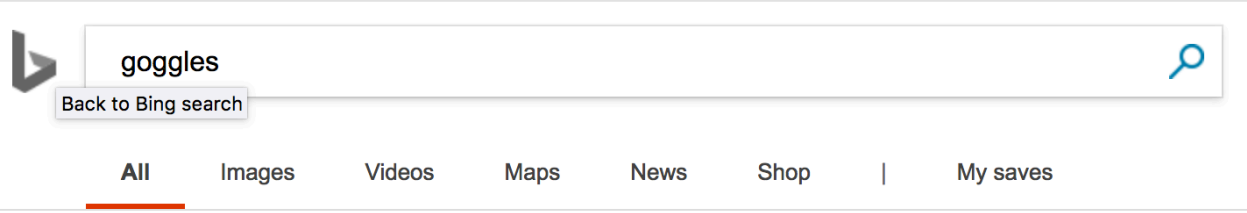
Appendix A. *Extended Reality against Goggles*

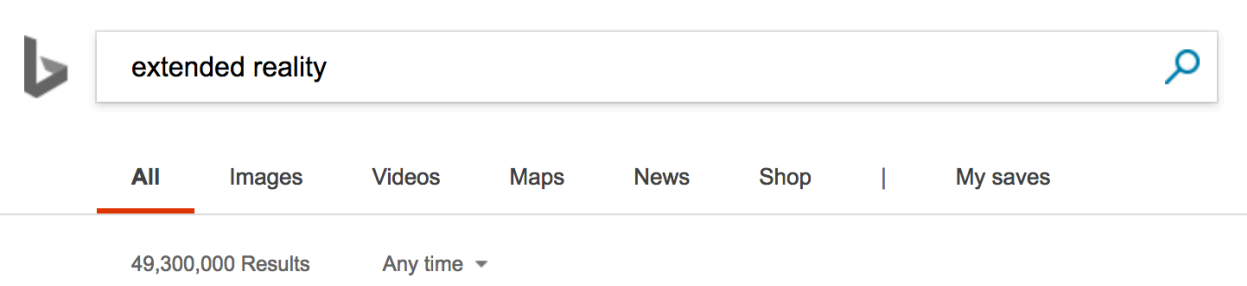
Google Search



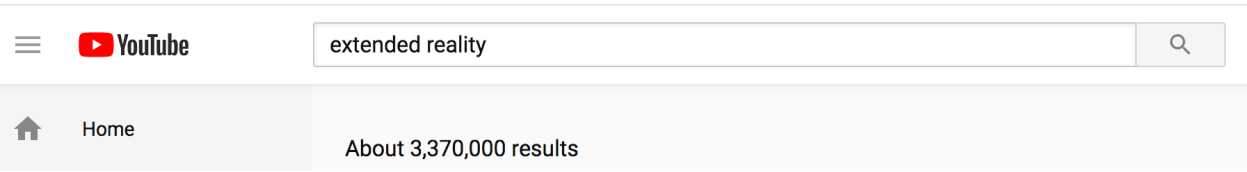


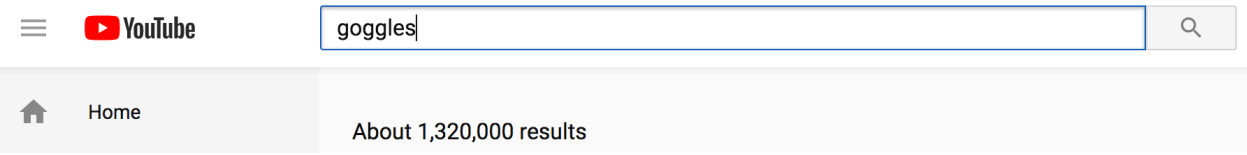
Bing Search



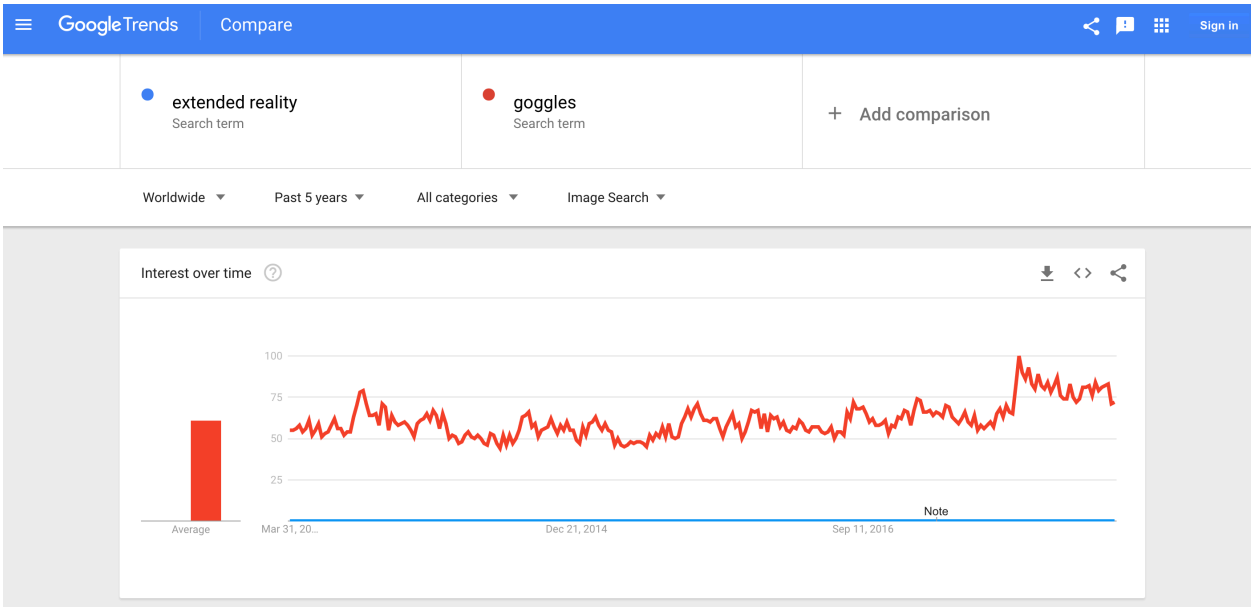


Youtube Search

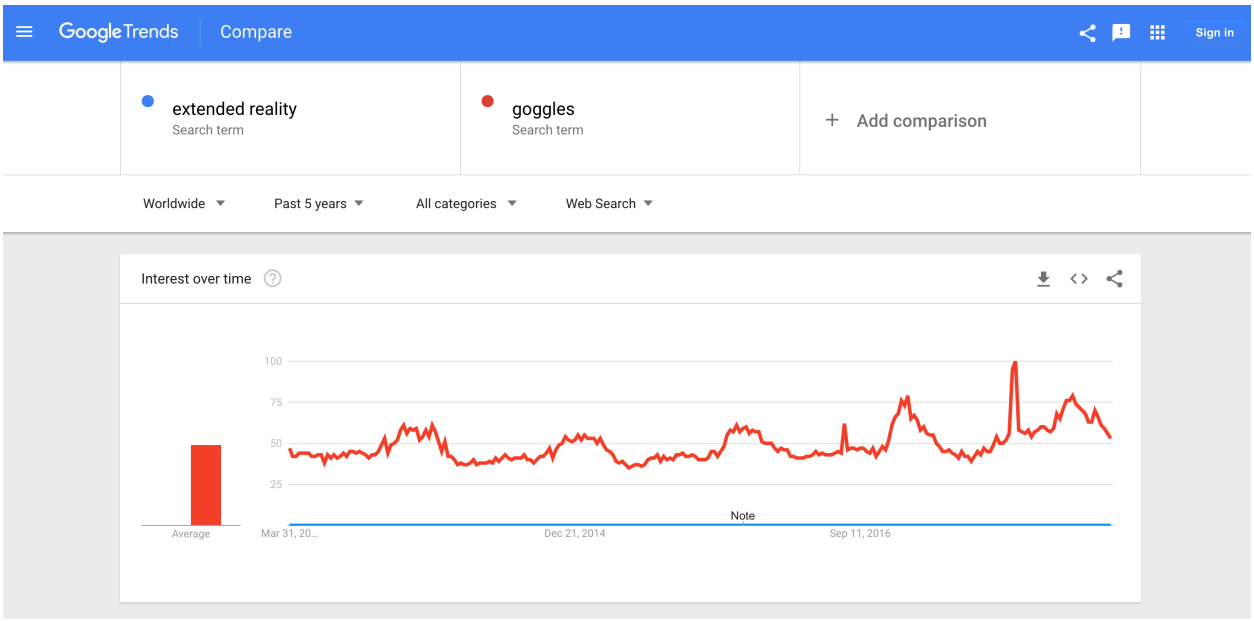




Google Trends (Image)

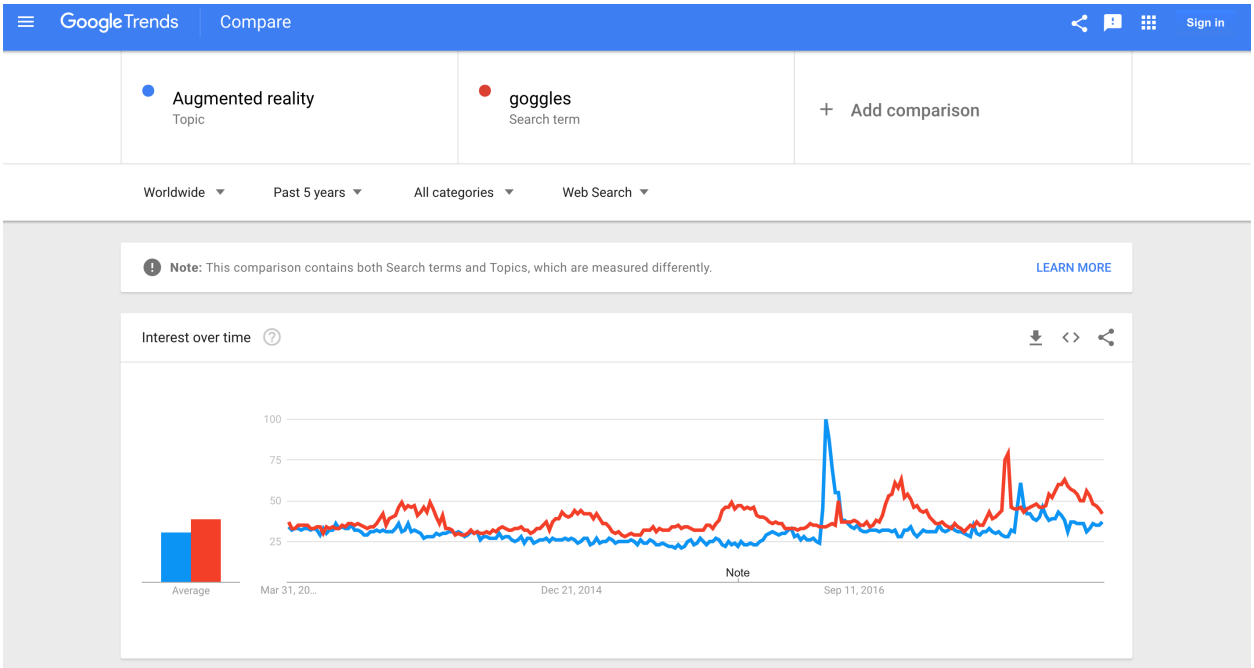


Google Trends (Web)

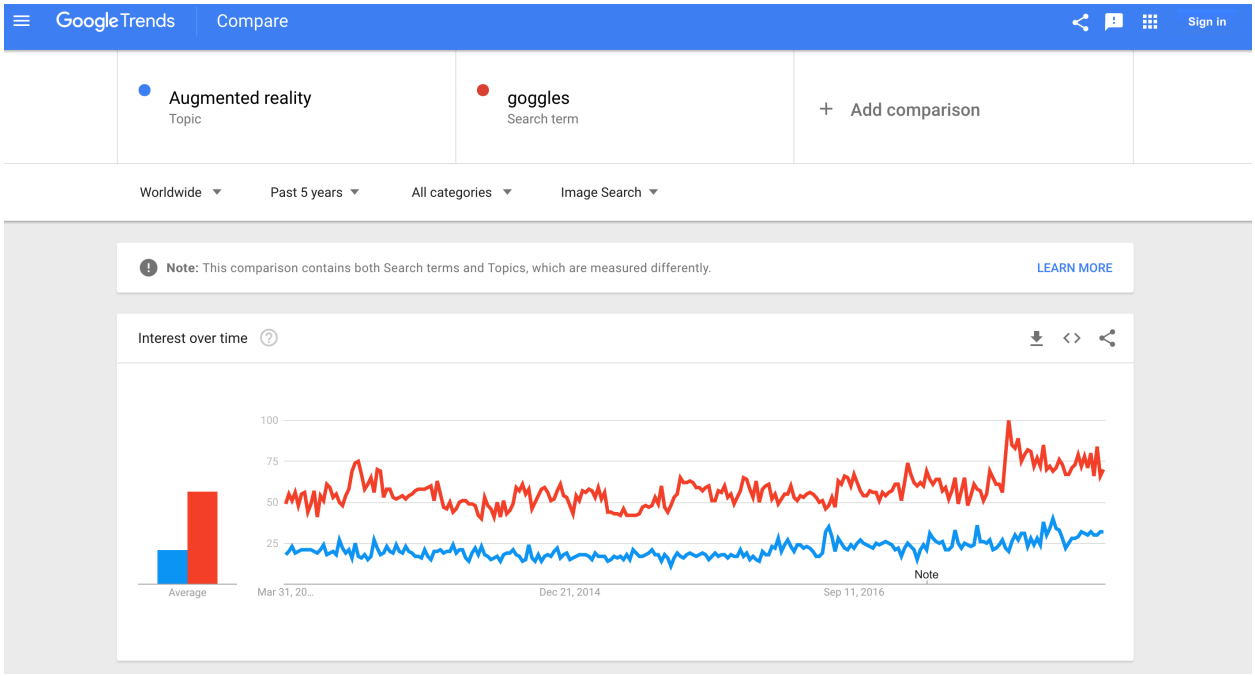


Appendix B. *Virtual Reality and Augmented Reality against Goggles*

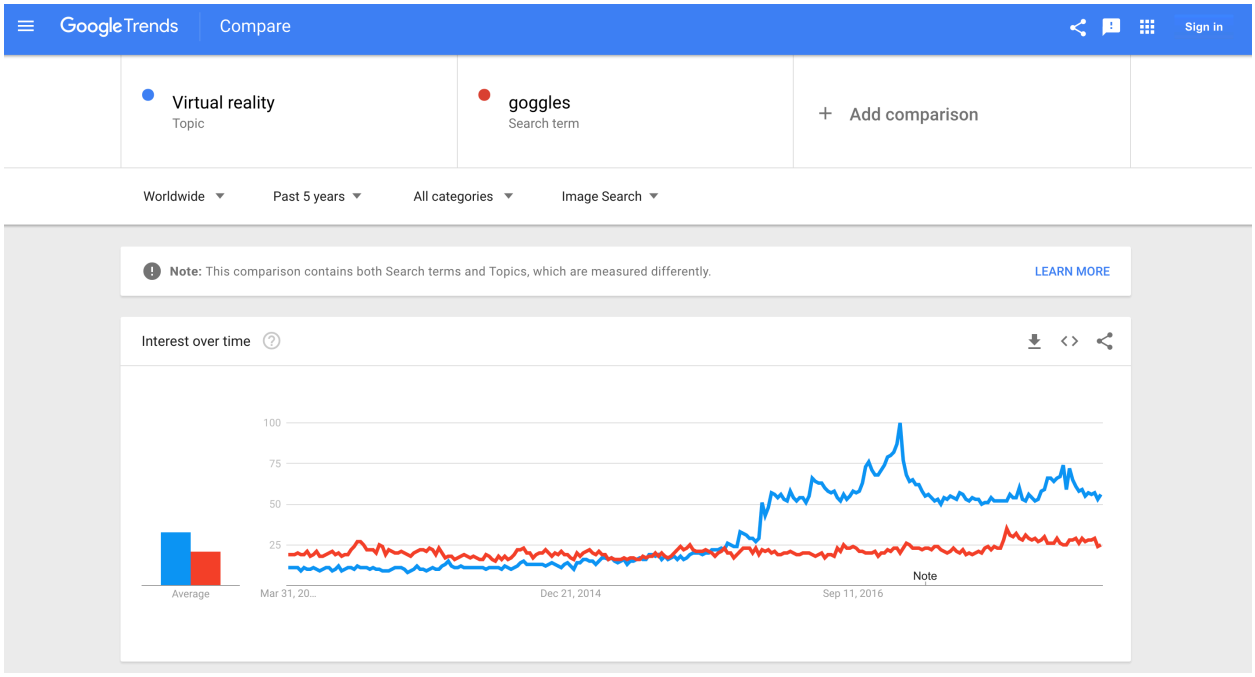
Google Trends AR (Web)



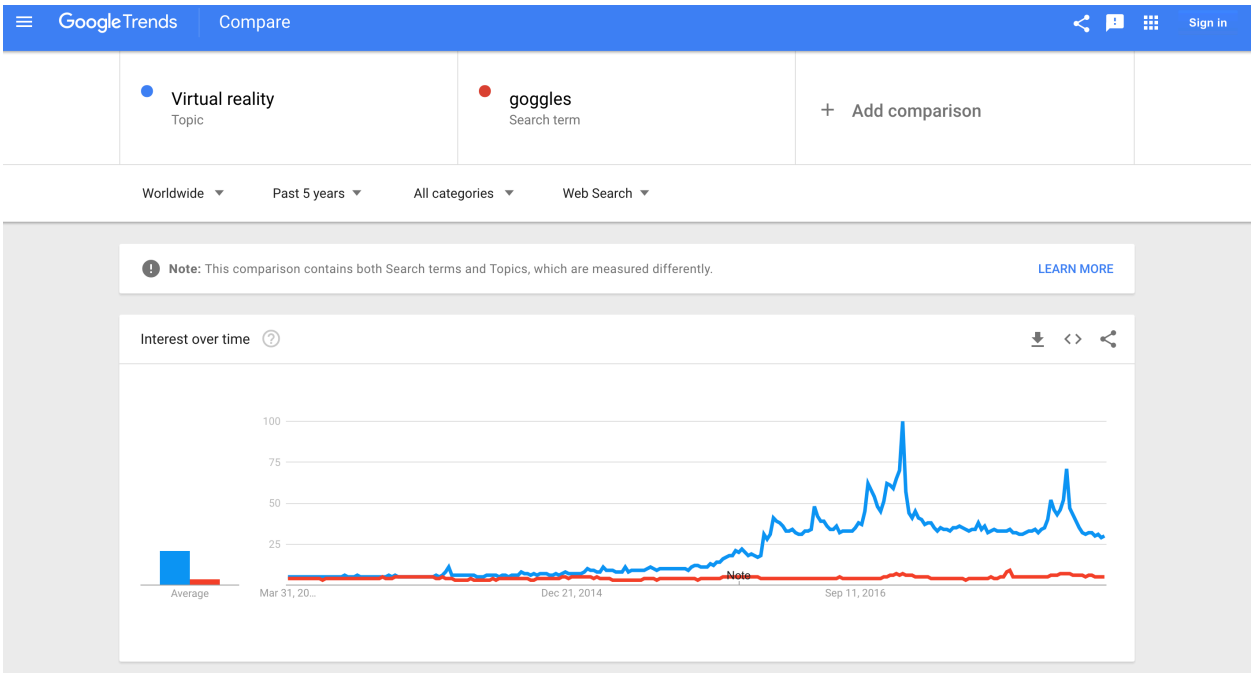
Google Trends AR (Image)



Google Trends VR (Image)



Google Trends VR (Web)



Google Trends, lacking “Extended Reality” topic indexing

As seen in the screenshot below, Virtual reality is already a search Topic, whereas extended reality is only considered a Search term.