

SOFTWARE ENGINEERING
DIGITAL TRANSFORMATION MANAGEMENT

The perception on the future of Virtual and
Augmented Reality: A predictive sentiment
analysis on Apple's Vision Pro technology

Bruna Moema Dias Bahmed
Mikayla Alessandra Mendoza
Cecilia Mina Rattini

Supervised by
Prof. Andrea Omicini

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Abstract

This research paper explores the perception of the future of virtual and augmented reality through predictive sentiment analysis, focusing on Apple's Vision Pro technology. The aim of conducting this research is to obtain a general idea of whether the public perceives this technology as a potential mass consumer product in the years to come. Through sentiment analysis on technical forums regarding both Apple and competitor's AR products, conclusions are drawn which will provide opportunities to investigate various viewpoints on the subject at hand. To this purpose, the Python programming language was used to perform sentiment analysis on the various data collected, while business intelligence tools aided in visualizing the outputs. This analysis does not seek to accurately predict the technology's future success, rather it aims to gauge people's expectations regarding how this technological advancement might impact their daily lives, comparing it to existing innovations from the past. By focusing on these insights, the research aims to shed light on the potential adoption and implications of Apple's Vision Pro and other AR technologies in the coming years.

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1 Introduction

Over the last decade, the world witnessed the development of new wearable devices such as smartwatches and fitness trackers in order to give us the ability to monitor our fitness levels and maintain a high level of productivity on day-to-day duties.

Moreover, these devices eliminated the need to have a smartphone physically on hand at all times as they exploited Bluetooth and/or Wi-Fi technology with encrypted communication protocols to send data transmissions to each other. The ubiquitous computing of these embedded devices influenced the way humans interact with technology, and how wearable technology completely changed and revolutionized individuals' behavior.

Another relevant example of smart wearable technology is the rise of "Augmented Reality Devices" typically called Smart Glasses, which have gained increasing attention from consumers. The general definition of smart glasses is "a wearable augmented reality (AR) device that captures and processes a user's physical environment and augments it with virtual elements" (Rauschnabel et al., 2015). The main idea of Smart glasses is to fabricate a completely new vision to experience the world differently. All of this is possible by capturing the physical information with sophisticated cameras and then displaying it in real-time using incredibly advanced technology with faster CPU processors compared to the past, while still utilizing an elegant design.

A well-known example of ARSGs (Augmented Reality Smart Glasses) is Google's Google Glass launched back in 2013, which are unfortunately no longer available on the market for consumers to purchase since last March 2023, and Microsoft's HoloLens from 2016.

A new product in the field of augmented reality enters the market with Apple. The announcement has been made at the Worldwide Developers Conference (WWDC) in June of 2023 of the availability of Apple's Vision Pro goggles and its potential release date set in early 2024 in the USA. This wearable device promises to be a mix of virtual and augmented reality together with a high-resolution display (dual 4K micro-OLED). The goal is to enrich users with valuable content and useful notifications, without overwhelming the client. Apple boasts that users will be able to see both the virtual and the real world through these lenses due to a powerful display. Smart glasses by their own definition are becoming a part of one's everyday life. Moreover, these devices collaborate with other technologies such as smartphones, voice assistant speakers, etc., and at the same time with non-personal technologies coming from the surrounding environment, such as sensors and other wearable devices like smartwatches.

This research paper will address and explore the new market of augmented reality smart glasses (ARSG) starting with a general description of Apple's Vision Pro goggles. Then, we will proceed with analyzing their potential competitors, such as Microsoft's HoloLens. Furthermore, sentiment analysis of the potential users, both technical and non-technical people, critiquing this will be carried out in order to provide a general viewpoint of the public towards the new wearable device. However, it is important to note that the aim of this research is not to draw future predictive conclusions regarding the success or failure of the technology since currently there is no active market for it.

The core point of the research is to understand the potential impact these wearable devices might have on the user's daily life. Another main point is to explore potential application scenarios in different fields, such as education and medicine, and how these devices can improve human capabilities. The objective is to understand whether the impact will be as relevant, for example, as smartphones were, in revolutionizing our everyday habits in terms of communication and cultural change.

2 Literature Survey

In the market, the very first pair of smart wearable glasses were launched by Google a decade ago, and now smart glasses have gained increasing attention from designers, researchers, and consumers and this has led to providing a clear and precise definition.

Predominantly, various research has provided a general definition and described Augmented Reality Smart Glasses (ARSGs) as wearable Augmented Reality (AR) devices that should be worn in the same way as regular glasses, with the only difference being that they capture and process



Figure 1: Apple Vision Pro: Apple’s first spatial computer

physical environment elements and augment it with virtual features. This virtual data should be presented in real-time on a high-quality display screen to the end user (Rauschnabel et al., 2015).

Even though this type of technology is still in its early stages, it is important to address the security risks and privacy concerns. Usually, along with the thrill of new technologies comes consumers and media consternation regarding this technology, particularly for individuals and society as a whole and related to data privacy and security threats. Questions are now focused on who the owner of the data is, how users can keep control over the information being shared, and how companies are using personal data (pictures, identifiers, etc.).

Since wearable computing development is moving towards the next generation of mobile augmented reality devices, this introduces additional and increasingly complex security and privacy challenges. Common problems are already shared among similar devices as well as with IoT devices, which needs to be taken into account since security and privacy measures have different effects on various applications. An example of this is Google Glasses since they have been dismissed from the market due to privacy implications. They did set initial boundaries, such as the device potentially being used to record video and audio without the knowledge of the people being recorded. Therefore, this requires further investigation and potentially legal actions since at the moment there is no specific law protecting the society from being recorded or watched without people’s consent.

Even though, as previously mentioned, both VR and AR headsets have been around for over a decade, none of the major players such as Google and Microsoft in the AR/VR industry have been able to make a particularly influential technological impact on the mainstream market. However, a similar product in design but different in terms of privacy is Apple’s Vision Pro. The launch of Apple Vision Pro in June 2023 might set the first milestone step for widespread early adoption.

Differently from any of its predecessors, Apple’s Vision Pro utilizes cutting-edge technology despite that in terms of design, the style resembles ski goggles rather than normal glasses. Apple designers divided the components (See Figure 1) as follows: the high-resolution display for the visuals, the speakers along with the microphone are incorporated into the audio lateral strap, the adjustable headband, which is required in order to retain the device onto your head, and the battery, which allow two hours of full use while unplugged (Apple, 2023).

The computational power of the system will be provided by Apple’s M2 chip alongside another specialized chip, the R1. These two chips together will work in parallel in order to deliver remarkable performance in maintaining comfortable temperatures and prevent any overheating in the device, which will pull out towards the bottom of the goggles and vent out the top.

Apple’s Vision Pro sets a unique way to see, hear, and interact with digital content as if users are a part of their physical surroundings. In other words, the surroundings become an infinite canvas as Apple’s CEO, Tim Cook, described when introducing the new wearable device to the world. Users will be able to sit anywhere and scale apps to any size without the limitations of the traditional screen as its overall interface will be fully three-dimensional, which is controlled

intuitively by using the eyes, hand gestures, and voice activation.

One of the innovative features called "EyeSight" will allow the Vision Pro to display the user's eyes when someone is nearby, therefore providing the illusion of having a transparent screen so people in contact with the user would be able to see the eyes through the goggles and bring them into focus mode on the display. The interface will work through eye tracking, clear body language signals, and advanced AI-driven voice commands in order to make human interactions effortless and immersive for the users.

Another relevant aspect to take into account that has been previously mentioned is privacy concerns from the user's perspective. Apple declared that the data will be encrypted, as data is currently in Apple's ecosystem, and will never leave the user's device or be shared with third parties. Apple's new headset will come with a built-in privacy and security policy as Apple designed their goggles with their users' privacy protection in mind and will let them control their own data. In fact, the device's principle itself is based on the foundation of already existing Apple privacy and security features. Moreover, the eye input will not be shared with anyone including Apple itself, so companies won't be able to track where a user looks, ensuring another level of privacy.

Apple's Vision Pro can easily connect wirelessly to any Mac device, transforming it into a portable high-quality 4K display and revolutionizing the environment into an immersive workspace. This seamless integration of the digital and physical worlds creates an environment which is perfect for collaboration and shared experiences among colleagues in the working environment.

The type of experience that augmented reality gives is unlike using a mobile phone because VR requires and provides emotional as well as physical experiences, the nature of the VR experience is more direct and emotionally powerful compared to traditional media.

A big lesson learnt throughout our modern history is that making accurate future predictions in the field of technology is nearly impossible. An evident example of this is the first launch of the iPhone back in 2007, many experts in the field and CEOs from famous companies forecasted the failure of the new device, mainly due to the added features made available that at the time nobody showed interested in, the novel touchscreen interface could have caused poor interactions and risked not being highly responsive, very high prices (which was way above the average phone available on the market at the time). All of these predictions, and many others that have not been reported nowadays sound absurd since smartphones have completely changed the world and human behavior and the way they interact with technology in different aspects of everyday life.

Apple is a very influential company in clearing the way for competitors, and allowing them to have easy access to world-changing technology. With their new device, it is expected to play a similar role and it is called a "spatial computer" by the company as it combines real and virtual elements into a physical space. Apple has made many efforts in perfecting the underlying technology in order to make it innovative. Potentially the price tag is a barrier that prohibits it from becoming a mass-market device, however, it gives a lot of room for cost shrinkage (Gurman, 2023). Certainly, over time, the various components will get cheaper and production volume will escalate as vendors become more efficient at manufacturing, as this happened in the past for metal laptop cases and touch screens, the benefits will be shared across the entire supply chain.

However, regarding augmented and virtual reality, currently, there is no market for such a type of device, therefore it is a very hard task to consider and take into account all the skeptical or enthusiastic reviews available from experts as well as online users and forums. This paper is not trying to produce any precise predictions, but rather only to open doors for a new device which could or could not become a mass consumer device.

3 Methodology

3.1 Sentiment Analysis

This paper utilizes Sentiment Analysis in order to gather an articulate public opinion on Apple's Vision Pro technology. Sentiment Analysis is a Natural Language Processing (NLP) technique used in the evaluation of opinions towards an entity in order to gauge the emotion and sentiment as a way of understanding and quantifying the expressed opinions from the selected text (Medhat et al., 2014; Kanakaraj and Guddeti, 2015; Zhang et al., 2018).

In this day and age, sentiment analysis has integrated itself with the increasing prevalence of social media, with the likes of tweets, blogs, and forums, in order to grasp a coherent and data-driven idea of general views about certain topics. Kanakaraj and Guddeti (2015) further discussed how these social networking sites, which contain short-form texts and images, aid in the analysis of the attitude on a specific topic which in turn identifies a perspective of public opinion. In particular, we gathered comments from technical forums, specifically MAC Rumors and AVS Forum, in order to gain a practical view of Apple's Vision Pro goggles from knowledgeable people without making the whole ordeal overly influenced by emotion.

As mentioned by Kontopoulos et al. (2013), through the use of Graded Sentiment Analysis, the aim is to determine whether the polarity of the text, in our case comments from forum threads, tends towards a negative, neutral, or positive sentiment.

3.2 RoBERTa Model

In order to accomplish the objectives of the study, the roBERTa-base model is adopted as the model used in applying sentiment analysis. RoBERTa, which stands for Robustly Optimized BERT Pretraining, is an enhanced version of BERT (Bidirectional Encoder Representations from Transformers) pretraining which involves training the model for longer, employing a larger dataset, eliminating any next-sentence prediction objectives, and using dynamically changing masking patterns to the training data (Liu et al., 2019).

The specific model used is pre-trained in the context of tweets and is further applied to comments from technical forums in order to get a more specialized public opinion compared to less substantial, emotionally-biased, and generic texts. In particular, the model was trained on an estimated 124 million tweets dating from January 2018 up to December 2021. Barbieri et al. (2020) states that the Twitter-roBERTa-base model enacts specific tasks including emotion recognition, stance detection, and sentiment analysis. In the most up-to-date version, which was used in this paper, emphasis is put on the relevance of continuous and time-aware model training effectively providing the latest language model possible as the results found demonstrate evident performance degradation over a period of time (Loureiro et al., 2022).

3.3 Source Code

The libraries needed to be installed (pip install) in order for the source code to function properly are the following:

- torch
- transformers
- scipy

```

1 from transformers import AutoTokenizer, AutoModelForSequenceClassification
2 from scipy.special import softmax
3
4 #comment
5 comment = ""
6
7 #load model and tokenizer
8 roberta = "cardiffnlp/twitter-roberta-base-sentiment-latest"
9
10 model = AutoModelForSequenceClassification.from_pretrained(roberta)
11 tokenizer = AutoTokenizer.from_pretrained(roberta)
12
13 labels = ['Negative', 'Neutral', 'Positive']
14
15 #sentiment analysis
16 encoded_comment = tokenizer(comment, return_tensors='pt')
17 output = model(**encoded_comment)
18
19 scores = output[0][0].detach().numpy()
20 scores = softmax(scores)
21

```

```

22 for i in range(len(scores)):
23     l = labels[i]
24     s = scores[i]
25     print(l, "=", s)

```

4 Results

Based on the Sentiment Analysis done in accordance with the methodologies described in the previous section, these are the results that emerged from Each comment from the two forums, totaling at 86 comments (See Appendix A), were evaluated using the sentiment analysis tool showing the probability of the sentiment being negative, neutral, or positive. Moreover, the average of all these results were calculated in order to see the mean probability for each polarity of sentiment.

	Average Probability
Negative	0.3126755489
Neutral	0.2955590649
Positive	0.3917653888

Table 1: Average Polarity Probability of Sentiment Analysis

Comment No.	Category	Probability Results
1	Negative	0.07774773
	Neutral	0.5016272
	Positive	0.4206251
2	Negative	0.0157082
	Neutral	0.08088632
	Positive	0.9034055
3	Negative	0.0033301688
	Neutral	0.10858502
	Positive	0.8880848
4	Negative	0.011766246
	Neutral	0.10127062
	Positive	0.8869631
5	Negative	0.77745914
	Neutral	0.20071875
	Positive	0.021822017
6	Negative	0.6688237
	Neutral	0.31656137
	Positive	0.014614924
7	Negative	0.7939608
	Neutral	0.1815681
	Positive	0.02447113
8	Negative	0.2847721
	Neutral	0.58412176
	Positive	0.13110612
9	Negative	0.004088621
	Neutral	0.051724494
	Positive	0.9441869
10	Negative	0.7587763
	Neutral	0.21256828
	Positive	0.028655436
11	Negative	0.7465648
	Neutral	0.22650318
	Positive	0.026932066

12	Negative	0.7002103
	Neutral	0.28424338
	Positive	0.015546322
13	Negative	0.67402554
	Neutral	0.28276467
	Positive	0.043209758
14	Negative	0.7067162
	Neutral	0.2736504
	Positive	0.01963348
15	Negative	0.53411186
	Neutral	0.32658926
	Positive	0.13929883
16	Negative	0.09014887
	Neutral	0.5541483
	Positive	0.35570282
17	Negative	0.21229
	Neutral	0.54985267
	Positive	0.23785737
18	Negative	0.13143964
	Neutral	0.8119241
	Positive	0.056636274
19	Negative	0.08617678
	Neutral	0.4642621
	Positive	0.4495611
20	Negative	0.31791654
	Neutral	0.41765887
	Positive	0.26442456
21	Negative	0.046675444
	Neutral	0.07813023
	Positive	0.8751943
22	Negative	0.019588428
	Neutral	0.10060807
	Positive	0.87980354
23	Negative	0.29847285
	Neutral	0.4783534
	Positive	0.22317374
24	Negative	0.5705202
	Neutral	0.34706643
	Positive	0.08241334
25	Negative	0.034063805
	Neutral	0.073961884
	Positive	0.89197433
26	Negative	0.006964291
	Neutral	0.035770535
	Positive	0.95726514
27	Negative	0.013398611
	Neutral	0.0958072
	Positive	0.8907942
28	Negative	0.60916096
	Neutral	0.3500223
	Positive	0.040816784
29	Negative	0.006229943
	Neutral	0.058644693
	Positive	0.9351254
30	Negative	0.00627775

	Neutral	0.029351432
	Positive	0.96437085
31	Negative	0.58074147
	Neutral	0.35160327
	Positive	0.06765529
32	Negative	0.8918028
	Neutral	0.097768165
	Positive	0.010429053
33	Negative	0.70382434
	Neutral	0.26713592
	Positive	0.029039733
34	Negative	0.04357924
	Neutral	0.18605979
	Positive	0.77036095
35	Negative	0.14922841
	Neutral	0.41262582
	Positive	0.43814576
36	Negative	0.78324157
	Neutral	0.19244353
	Positive	0.024314882
37	Negative	0.66873616
	Neutral	0.3147884
	Positive	0.016475432
38	Negative	0.45703137
	Neutral	0.4461725
	Positive	0.09679609
39	Negative	0.002518869
	Neutral	0.011619698
	Positive	0.9858614
40	Negative	0.003354513
	Neutral	0.02630693
	Positive	0.9703386
41	Negative	0.9032888
	Neutral	0.085292965
	Positive	0.011418181
42	Negative	0.009275687
	Neutral	0.15968904
	Positive	0.83103526
43	Negative	0.40271446
	Neutral	0.5109794
	Positive	0.08630614
44	Negative	0.028068496
	Neutral	0.27272815
	Positive	0.6992034
45	Negative	0.38679868
	Neutral	0.34891737
	Positive	0.2642839
46	Negative	0.003855333
	Neutral	0.01306049
	Positive	0.98308414
47	Negative	0.3331876
	Neutral	0.48011622
	Positive	0.1866962
48	Negative	0.03308072
	Neutral	0.13185029

	Positive	0.835069
49	Negative	0.023589179
	Neutral	0.15804157
	Positive	0.81836927
50	Negative	0.002550945
	Neutral	0.031024111
	Positive	0.96642494
51	Negative	0.71383166
	Neutral	0.22040544
	Positive	0.06576286
52	Negative	0.61570895
	Neutral	0.33870432
	Positive	0.045586664
53	Negative	0.8643265
	Neutral	0.123815216
	Positive	0.011858415
54	Negative	0.17937103
	Neutral	0.69596106
	Positive	0.12466785
55	Negative	0.6986445
	Neutral	0.27901205
	Positive	0.022343406
56	Negative	0.43051472
	Neutral	0.47912556
	Positive	0.090359725
57	Negative	0.004067115
	Neutral	0.013964571
	Positive	0.98196834
58	Negative	0.22556148
	Neutral	0.5917605
	Positive	0.18267792
59	Negative	0.007313878
	Neutral	0.032884367
	Positive	0.9598018
60	Negative	0.021933524
	Neutral	0.39771342
	Positive	0.5803531
61	Negative	0.36842734
	Neutral	0.3092157
	Positive	0.322357
62	Negative	0.04908976
	Neutral	0.12261177
	Positive	0.8282985
63	Negative	0.5320678
	Neutral	0.40709937
	Positive	0.060832825
64	Negative	0.7702827
	Neutral	0.2116892
	Positive	0.018028148
65	Negative	0.59539217
	Neutral	0.34012118
	Positive	0.064486645
66	Negative	0.43453762
	Neutral	0.5009186
	Positive	0.06454375
67	Negative	0.6759819

	Neutral	0.3020921
	Positive	0.021925986
	Negative	0.79612285
68	Neutral	0.18555915
	Positive	0.018318046
	Negative	0.14136502
69	Neutral	0.40073502
	Positive	0.45789996
	Negative	0.22450443
70	Neutral	0.6767465
	Positive	0.09874902
	Negative	0.6734592
71	Neutral	0.29297444
	Positive	0.03356638
	Negative	0.13437487
72	Neutral	0.5908154
	Positive	0.27480978
	Negative	0.022286464
73	Neutral	0.19205874
	Positive	0.7856548
	Negative	0.02431018
74	Neutral	0.072953016
	Positive	0.90273684
	Negative	0.80913234
75	Neutral	0.16598861
	Positive	0.024879148
	Negative	0.02084703
76	Neutral	0.48462594
	Positive	0.49452704
	Negative	0.014212931
77	Neutral	0.5465888
	Positive	0.43919826
	Negative	0.24938257
78	Neutral	0.5079438
	Positive	0.24267364
	Negative	0.027061688
79	Neutral	0.27199653
	Positive	0.7009418
	Negative	0.015599369
80	Neutral	0.16028447
	Positive	0.82411623
	Negative	0.15534675
81	Neutral	0.7660827
	Positive	0.078570545
	Negative	0.027479643
82	Neutral	0.31891337
	Positive	0.653607
	Negative	0.03681232
83	Neutral	0.6190379
	Positive	0.3441498
	Negative	0.3712698
84	Neutral	0.5406628
	Positive	0.088067375
	Negative	0.003246559
85	Neutral	0.020549977
	Positive	0.020549977

86	Positive	0.97620344
	Negative	0.33837608
	Neutral	0.55929935
	Positive	0.102324545

Table 2: Complete Results of Sentiment Analysis

5 Discussion

5.1 Sentiment Analysis Output

The results show that the opinion of the public in regards to Apple’s Vision Pro is predominantly positive, with a prevalence of negative over neutral probability (See Figure 2). In particular, commenters were concerned with the lack of practicality of Apple’s goggles in comparison to already existing technology: several mentioned how it would be hard to carry out group activities in presence, such as watching movies, as that might imply that every member of the group needs to have their own pair of goggles in order to seize the experience together.

They also mentioned how, with Vision Pro’s battery life expected to be only 2 hours long, it wouldn’t be convenient to use the goggles to perform day-to-day activities when the technology that most of us are already in possession of has much longer lasting battery life, thereby leading to more efficient completion of tasks. The awkwardness of Vision Pro’s current design was also remarked a number of times, though in defense of the goggles, it was also mentioned that, as time passes by and new models come out, their design might eventually become more aesthetically pleasing to the human eye.

A limited number of potential users were also concerned with the possibility of health issues arising, such as the effect of the goggles’s vicinity to our eyes and how that might have a negative impact on our eyesight, and a larger number also remarked how the discomfort caused by the extra weight applied to one’s head for several hours might become an issue for most users. Most commenters were concerned with the pricing of the device, assuming that, for what it is and for the limitations it presents, only particularly tech-savvy users and die-hard Apple fans would be willing to spend that much money to acquire it, but not the average Apple (or technology in general) user.

Though several negative aspects of the product were well observed, as previously mentioned, the overall opinion in the forums taken into analysis was mostly positive. In fact, many commenters mentioned how, in spite of its initial flaws, Apple’s new gadget is overall exciting news for technology enthusiasts, as it represents a huge technological advancement in the field of Augmented Reality and it might be the first step towards a new paradigm of spatial computing. They also mentioned how the price won’t be a problem to those who are genuinely interested in acquiring the product, because Apple, being a brand with a premium appeal due to its usage of high-end components and elegant design, can afford to make expensive products and still maintain a vast market reach.

Overall, so far it seems that the public’s opinion can be summarized with both excitement and doubt. At the same time that people are enthused for what Apple’s Vision Pro might represent in terms of a possible conversion of the masses to Augmented Reality, they’re also concerned about its appeal (or the lack thereof) on the average person.

5.2 Potential Evolution and Application Scenarios

These technologies have great potential to enhance our abilities as humans and can be applied in several application scenarios for various fields.

Augmented Reality (AR) devices can be employed potentially for education since the combination of AR technology with educational content creates new types of automated applications which aim to enhance the effectiveness and attractiveness of teaching and learning for students in real-life scenarios. Also, AR has been applied and used in different fields such as manufacturing, consumer design, and robotics as it combines numerous elements from ubiquitous, tangible, and social computing.

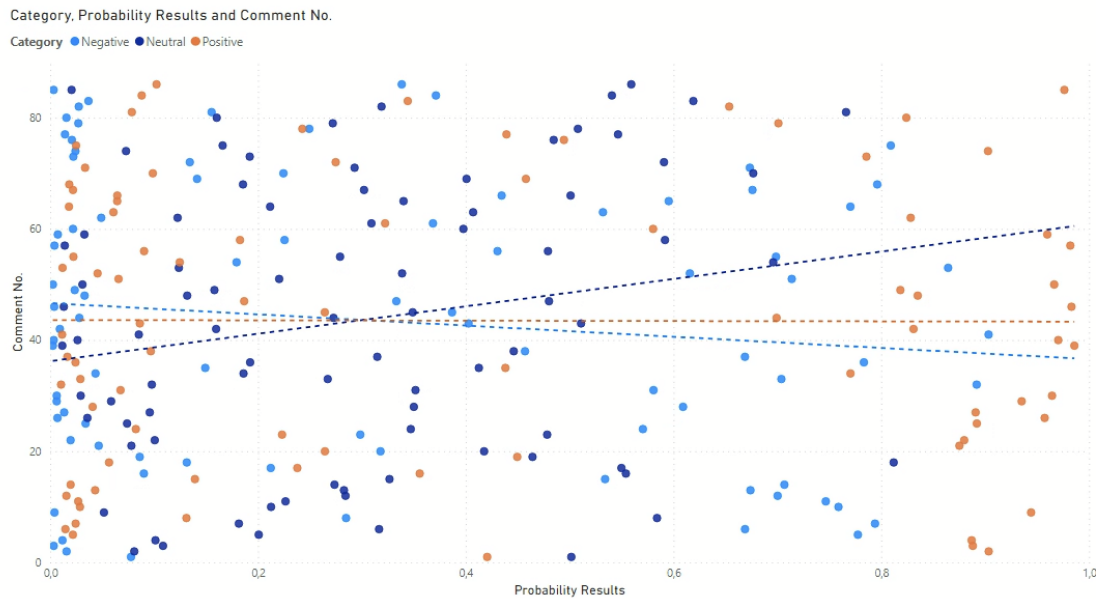


Figure 2: Scatter Plot of Results with trendlines

Currently, two-dimensional media is mostly used in education, due to it being very convenient, familiar, flexible, portable, and inexpensive. However, it is static and does not offer dynamic content. Alternatively, computer-generated three-dimensional virtual elements can be combined with high-performance computer graphics, although these technological components together end up being more expensive than others.

Augmented Reality can be applied for learning, enhancing a user's perception of and interaction with the real world. Users can move around the three-dimensional virtual image and view it from any vantage point, just like a real object. The information conveyed by the virtual objects helps users perform real-world tasks.

Moreover, learners can enjoy seamless interactions between the real and virtual environment through the combination of augmented reality interfaces with educational content. This new approach enhances the effectiveness and attractiveness of teaching and learning. The ability to overlay computer-generated virtual items onto the real world transforms the way we interact and can be seen in real-time rather than a static experience. Therefore, AR conveys virtual information and objects onto real scenes to maximize natural and intuitive user experiences in real-time (Kesim and Ozarslan, 2012).

Another interesting application of AR is when used in enabling and enhancing collaborative tasks. It is possible to develop innovative computer interfaces that merge virtual and real worlds to enhance face-to-face and remote collaboration. These augmented reality applications are more similar to natural face-to-face collaboration than to screen-based collaboration.

In order to achieve realistic solutions the designing and coordination of multi-disciplinary research projects are necessary to enhance content and environments. Educators must work hand in hand with researchers to develop these interfaces. Furthermore, software and hardware technologies play a significant role in producing these applications.

Apple's Vision Pro promises to make noise in the world of technology, whether this would be positive or negative is yet to be seen as with any revolutionary change in the devices we use in our daily lives, there are people who are wary of the prospect evolution poses and those who are just excited at the notion of change. The vision for the future of AR and similar devices hinges on the ability to bridge the gap between novelty and usability. While current AR, and subsequently VR, applications showcase impressive capabilities, they often feel flashy or lack the aspect of real-world practicality. The key lies in developing use cases that genuinely enhance daily activities, ranging from research to entertainment purposes. Understanding which specific applications resonate the

most with the public will be crucial in shaping the future development and success of this type of technological advancement.

6 Conclusion

Promising to blend digital content into our physical world, Apple's Vision Pro represents an undoubtedly remarkable step forward in the field of spatial computing and augmented reality. Although many technology enthusiasts and Apple fans have demonstrated their excitement over the goggles, a lot of them have also expressed their concerns regarding various aspects of the device.

Overall, it's important to note that, for every new product of any kind, the initial expectations don't necessarily end up aligning with the outcomes, which is why it's difficult to determine whether or not Apple's new goggles will get to have the same market reach as their now mainstream products. As a brand new sort of gadget that comes with the potential to inaugurate a new paradigm in the age of smart devices, mixed reactions from the public are to be expected. Ahead of Vision Pro's launch, it's impossible to get a solid opinion from its potential buyers, as the vast majority of them still haven't had the chance to experience any of the pains and gains that they're speculating on at the moment.

When it comes to AR devices such as Apple's, a novel type of experience is offered to users, and only time will tell whether or not people will be willing to convert to it. Therefore, further research needs to be carried out since there is not much literature available, and additional data should be collected for example, for performing umbrella reviews for different AR application areas in order to identify potential lack of proper technical coverage.

In the years to come, Apple will most likely work to build a lighter-weight device that can be more easily used in an open space environment. Moreover, the company could collaborate with high-end fashion brands to make the design even more appealing.

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A Appendix: Comments used in Sentiment Analysis

No.	MAC Rumors	Source
1	Okay, listen, I respect the work that went into this. I can also respect this is a kind of beta hardware for something that might be practical one day in the future. Apple can totally afford to play around with ideas. So, I'm not knocking them for working on this. However, let's be honest. How many people want to wear this thing on their head instead of watching their 65" OLED TV (or bigger for the price of this thing)? Who wants to take this on a trip instead of a trusty MacBook Pro that has 16 hours of battery life? Who wants to use this thing to write forum posts? Who wants to use this thing to do much of anything? Not me. In fact there is only one thing I can see this being useful for given the battery life, but they aren't going to market it for that.	MAC Rumors Thread 1
2	I do. I absolutely love VR and already watch stuff from my Quest 2. The price tag is the only thing that is keeping me from getting this, which is why I'm waiting for the consumer model releasing in a year or two.	
3	This is the first iteration that will mostly appeal to early adopters (like me). Every subsequent iteration of this product will appeal to a broader audience as it matures, just like iPhone.	
4	Yes to all of those please. I haven't tried Vision Pro yet but assuming the displays are incredible quality and completely immersive I probably would use them over a TV/monitor for media, and for productivity, and for taking with me on a trip to use alongside my MacBook as a virtual desktop environment, and for doing mundane things like writing forum posts. Basically everything. I dare say it but if this can be configured to use as an extended Mac desktop (with more than just a single 4k display as demonstrated in the keynote) I might just get rid of my two external monitors from my desk altogether. I sit in front of a window so hell yes I want floating opaque OS windows that blend into the real life environment in front of me.	
5	I don't think it's only about cash. It's about the fact that the hardware itself is objectionable. The software and experience can be fantastic, but the hardware is actually getting in the way and enabling it at the same time. You can clearly see why a lot of people inside Apple did not want them to release this hardware at all but there's no way that Tim Cook is going to wait until after his tenure for this software experience to get on the market.	
6	Not enough studies have been done on impacts to vision (Meta says you should be taking breaks every 20 minutes) or psychological studies. With escapism and addiction, many people turn to drugs, sex, video games, etc. to deal with difficult times. When you can make reality be whatever you want it to be, it could very well cause people to become more antisocial and more reclusive in their lives. This is not the hopeful future I wanted as a kid.	
7	I can tell there's a lot of tech in the Vision Pro but I just don't see what problem it's solving or anything I would want it for. And I really didn't see anything that would get me to spend \$3500 and strap goggles to my face for 2 hours at a time.	

8	Just on flying. There is no way airlines will allow this unit to be used for taxi, take-off and landing. Similar to how some airlines ask for NC headphones to be removed during those stages. They can't and won't permit passengers to be oblivious to possible safety instructions due to emergencies etc, when wearing these devices. I can see the positive uses of this headset. This of architects who can now bring their designs say, for a new wing of a building, to life by using this headset, looking at the actual space and filling it with the AR design. Or other designers or civil engineers using these headsets to look at projects and possibilities in a whole new way. Or film directors or other creators who will definitely use these and will love the possibilities it opens up. It's ordinary consumers that the questions are directed at with this product.	
9	This is bigger than Apple. This is the direction the world is going in. AR, Web 3.0, imagine virtually walking down a virtual mall, shopping and picking things up, purchasing things as if you were there in person, all to have it seamlessly shipped to your house by drone. I'm excited, there will be a new gold rush for apps and services done via AR headsets like this one, similar to what we saw with phone applications with the iPhone. I missed out on development for the iPhone, i won't be missing out on the development for AR.	
10	I hope not. That sounds awful. Besides, this thing wasn't even a VR headset. It was an AR headset. The rush will be when they can make a virtual world feel realistic. This thing makes the real world try to feel virtual. And everyone wanting it for flights? Wait until every person moving near you on the plane causes your apps to be transparent and you see them. And then they see you making eye contact with them. And now they want to talk to you.	
11	Yeah, that clip caused some cognitive dissonance mixed with a dash of dystopian unease, as did the whole presentation. I've always associated apple products with looking outwards towards the larger world. The VP seems like a retreat inward, to a safe space literally bounded by technology. At least for average consumer. I have no doubt it could have some great industrial, design, and education applications tho.	
12	Honestly it kinda freaks me out if things like this catch on. People are already glued to their phones/devices as it is. This is literally gluing a device to you. I can imagine a couple sitting on a couch watching a movie "together" with these on, while one person is on the side glancing at their IG feed or whatever else. Not that people don't already do that to some degree, but this seems somehow even less personal.	
13	The projector comparison is where I see the biggest problem for this thing ever becoming 1% as pervasive as an iPhone. I mean, if you exclusively watch your projector alone, sure, it's a great deal. How favorably does a half a dozen of these compare? How easily can you even find a half a dozen people who want to sit together in a room with these things on their heads and battery packs on their bodies? I also really don't see people using these things for workouts, to me that sounds awful, and even after all their health talk, that's something they didn't even try to demo. I guess if it's a pretty light workout, but I don't want to sweat with something on my face, that sounds like hell. The only benefit would be what, a virtual river?	

14	This is more or less my opinion on it. It's not that I can't see how this could ever be popular, but I don't know that it should be. And the response will be "they said the same thing about smartphones". Yes. That's the point. This kind of "immersive tech" takes what's bad about smartphones to a new level.	
15	Don't get me wrong the tech is amazing. But I dunno.. the whole 'look at this fake lake while the real world is falling apart' aspect of the presentation gave me a bad vibe. Also the part with having it on while your kid is interacting with you. Just sitting in your house producing and consuming content with this thing on your face.. it's the perfect metaphor. 'Just be happy and don't think about it' Am I alone in this, or is anyone else feeling this?	MAC Rumors Thread 2
16	This is not being looked at as a replacement for real human interaction. It may enhance it, in some scenarios. If all the device did was immerse the user in calming environments that reduced stress, it would be worth the cost for that alone. Reducing stress will end up lowering health care costs long term.	
17	I think eventually "augmented reality" will just superimpose a more pleasant "reality" over the real one. If you step outside your house with your AR glasses on and you see homeless encampments on the sidewalk, the glasses will replace them with an image of beautiful flower gardens. It sounds like a joke, but I could totally see it happening.	
18	If you have your computer in a separate room and close the curtains, you're also isolated. At least with "Spatial Computing" an effort is made to have people appear in your virtual world. In the end it is the user's responsibility how much they wear them.	
19	I think part of that just comes down to VR headsets released so far not being usable as general purpose personal computers. People look at a lot of text on screens. Most VR headsets have been poor devices for reading text, and haven't really had good operating systems with a wide variety of apps with good UI. The Vision Pro looks to make great strides in those areas. Many people have been able to replace their desktop/laptop computers with iPads or even iPhones. An AR/VR headset could have similar portability to an iPad, but with advantages of a desktop PC—lots of screen area. Once VR/AR headsets are good at doing most of the things we currently do with computers of other form factors, in combination with things that are uniquely available to VR devices, they at least have the potential to become very popular.	
20	Yea as a work tool I think it's great. Site surveys for architecture or walking in a conceptual design. Could be ground breaking stuff. But as an every day media consumption device I think it's kinda silly and borderline unhealthy. The problem is, it will never succeed unless it's marketed as a media device. It simply needs the sales.	
21	Technology wise...the geek in me says it's AWESOME. Price wise, while it's not an issue for me...I don't see a use case worth that cost yet. I'm conflicted 😊 It's cool and "meh" at the same time. I kind of feel like I could have stopped watching the keynote during that announcement and feel like I didn't miss much.	MAC Rumors Thread 3
22	I was actually impressed by the Vision Pro...but maybe that's because my expectations were pretty low. It is a better AR/VR gadget than I expected, but not enough intrigue for me to splurge for one.	

23	Exactly, I don't see a market for this, other than some fancy content device. Office use, well maybe, for something very limited, but then again \$3500 can get you a nice computer and do multiple tasks with it, which you know it can do easily. Product ahead of its time is my feeling.	
24	The 2 hour battery life kills it for me. I might be able to justify the high price might if I could use it like an iPhone anywhere and often enough to get my money's worth. But the battery belt and scuba diver goggles means this thing is for home use. If I'm home, I can just use my 49-inch monitor.	
25	Had (and still have) serious doubts about this. But I will say, I think it looks really cool. Will I be getting one? Absolutely not, however, I can still say I think it looks pretty great.	
26	Exciting stuff but for \$3500?!?! Tim, I better be able to see into the future	
27	I thought this was DOA. I was wrong. I think this is revolutionary. It's not a VR device like I imagined. It's an AR device. I could totally see myself buying this or buying a future version. I work a lot while traveling. One of my main issues is not having a big external monitor when I'm away from home. This solves that problem for me and integrates with my MacBook Pro. Also, the \$3500 price tag is fine. Just think of it as buying an M2 Mac, a 3D 100" OLED screen and an iPhone in one. I'm excited to see this in person and excited for the second version. I'm betting that by version 3, it will be purchased by the masses. The first one is obviously aimed at developers. Overtime, it will get more powerful, lighter, longer battery life, and cheaper. It will eventually have a great non-pro version for the masses.	
28	\$3,500. That's a very small audience it's going to find for itself. Apple fanboys and directors of futuristic thrillers in Hollywood comes to mind. The boy wanting to watch Disney + might not be able to afford it with his pocket money	
29	Might look a bit strange right now and this might sound silly to say, but I predict this is going to be a game changer in how many of us interact with computers. This is bigger than just another Apple product.	
30	The battery pack looks like an identical shape and size to the original iPhone. I very much did not expect the battery be clad in aluminum but I love that it is reminiscent of the device that changed everything. Very, very excited for this device and will be among the early adopter nerds looking like Bug Eyes.	
31	Futuristic and sleek? Those are not the adjectives I would use. Looks more like cross between skiing goggles and a pair of early 00's Oakley sunglasses. lol	
32	The biggest keynote flop of the Tim Cook era. Apple itself didn't even present a "why" for this. Why should I?	
33	Unless they've invented another cable interface, it looks like the cable to the battery is fixed, which seems like a really bad idea to me. There is a seam around it, so hopefully it's detachable for quick hot swaps (for the people that can afford these, anyway).	

34	This lines up more with what I expected but the demonstrated user experience is beyond what I imagined. Just my opinion, but: As a platform experience, this is absolutely incredible. From a practical standpoint, the hardware is going to be seen as "silly/ridiculous" by MUCH (not all) of the market, maybe too many to make it a mass consumer product. The price is also probably on the high side for a mass market device, for what it is. A friend of mine had a good point too: imagine walking into a room and your friend or family member is on the phone. They stay on the phone but now they're talking to you too. Weird right? The example of someone walking up to someone wearing these and the "wearer" just starts talking to them while keeping the headset on and their eyes are "projected/rendered" ... also seems weird. At least to me. Spatial computing may indeed be the next major category, but until the hardware mostly approaches a form factor that almost completely resembles "glasses", this product will not usher that category broadly into existence the way Mac and iPhone did respectively.	
35	I think it's fine. The AirPods used to look dumb when it was first released. Remember that? I remember being an early adopter of the AirPods and feeling insecure in the public wearing them. Now the AirPods look iconic and signals that you have wealth. I think Apple has done a great job making it look not weird with its design and eye display features. Plus, because it's designed to be an AR device first, it won't make the person wearing it disconnect from the environment.	
36	I don't think Steve Jobs would let this pass as an Apple product. For AR/VR technology to be truly revolutionary you need to be able to touch the 3D objects in front of you. The VR inputs are just extremely bad and unintuitive to use for most people. The combination of using of your eyes, weird gestures and voice commands is just not very practical. I think until we can have full control of the 3D environment with our hands just like multi touch worked for iPhone, AR/VR is just going to be a niche product for tech enthusiasts. I feel actually sad that Apple can't see this. It just shows that without Steve Jobs they have no direction. Steve Jobs would never enter into a new category of products if it didn't make sense to deliver the best possible solution for people. Apple didn't need a VR/AR headset right now. They have enough money without it. The technology is just not as mature as it needs to be. It doesn't matter how good the screen looks or how well it fits. It's all about the input when it comes to AR/VR replacing computers. We're not there yet, but hopefully they'll realize this.	
37	Wearing it you look like a dragonfly. Kinda creepy	
38	I use Excel every day. No way would it be productive to use it this way.	
39	The Vision Pro looks great. Apple designers made something quite good looking for a 1st generation device. 🎩👓🧠🎓🇨🇦🧊-off	
40	It was a long journey Tim, but you finally managed to introduce a new product. Welcome Vision, goodbye FINALLY iPhone, iPad, Mac. Welcome back to Sun MicroSystem Looking Glass! 5 years more and finally we will be in the future, no more keyboards, mouse, screens. Hallelujah!	

41	I cannot believe it's here either ... in fact I'm not believing this thread at all until a bit later for me to watch the keynote. But man having an external battery pack?! It's like Apple's version of the BlackBerry belt-holster. THIS is terrible! Maybe Apple and TSMC really needs a better implementation or advancement in the A-series chip design and evolution of say 4 generations ahead for incredible power-efficiency to negate the need for a battery pack.	
42	This is it. This is endgame tech. The only other leap forward will be jacking into the Matrix. This platform will get refined to the point of near-Black Mirror levels of miniaturization, and will become the dominant form of computing for the masses once the price comes down and the tech gets smaller. It will not eliminate traditional computer-monitor-iPhone-tablet setups, but I believe it WILL become the default. This product right here is the REAL culmination of Apple Silicon.	
43	I am sitting this one out as its new & first gen, to see how sales goes. As for physical well being, i am worried about my peepers and motion sickness when scrolling fast. It also might be an investment to buy one and keep it sealed for the future.	
44	The technology looks intriguing, although I wouldn't dare wear this outside the house unless I was going to a Battlestar Galactica meetup.	
45	Game Changer, everyone else has failed at VR. Microsoft tried AR with the HoloLens which really doesn't work very well. If this truly works as shown Apple has the content, partnerships and developer community to make it happen. I'll buy one, and I can only imagine how future generations of the product will evolve and improve.	
46	They look good. I bet they will be fun to use. Good job, Apple.	
47	I had no interest in this at all before today. Now I am thinking goodbye to my MacBook, television and monitor. It won't be long before I think I won't need an iPhone. Just an Apple Watch and AirPods when out and about, and the VR at home will be fine. I may wait for the second generation, but I am tempted to go for it for it immediately. Given what it can replace I don't think the price is that unreasonable. \$2999 would I suspect pull many more people in, but I'm willing to splash \$3499 if it is as good as it seems to be.	
48	No first hand impressions.... This thing is not ready yet! Well, it's not quite ready to go on sale, but already impressive... I'm mostly interested in using it for 'regular' computing on immense virtual screens! -edited after seeing first impression videos-	

49	been waiting a minute (by MR standards, lol) to drop my thoughts on this, letting the RDF settle—I’ve thought all along that the success of this device would hinge entirely on its presentation. imo, they absolutely knocked it out of the park. this is so many devices in one when you think about it. a companion to all of your Apple devices, a massive screen, a 3D camera, an incredibly well-thought-through implementation of AR (with keyboard and track-pad support, thank god), along with the best elements of any given VR headset—all wrapped into a device that only Apple could have designed, factoring in how non-bulky this is relative to virtually anything else on the market. I cannot see myself dropping \$3500 on the first-gen, barring me becoming a dev and beginning to think up creative/innovative ways this could be used (along with some extra capital)—but some time down the line, I can absolutely see myself buying this. well done to everyone who spent years working on this. it seems to have paid off handsomely and I’m incredibly excited to see what devs come up with for the device. let us remember that the iPhone didn’t truly take off until the App Store was created.	
50	I bet apple will have the share feature so you can watch the movie with your friends anywhere in the world or sitting right next to you. I can’t wait to get my hands on one of these	
51	Ridiculous price, but pretty slick looking unit. Can’t see myself with one for a long, long time, but I am probably not their target market anyway.	
52	Bad for the wallet though. Imagine a family of 5 having to pay \$17,500 just to watch a big screen movie together? Better to just spend much less on a big screen TV. Then you can have even more people over for things like super bowl partie	
53	The price is what kills it. I mean it’s cool concept but idk I just don’t see this product taking off. If only rich people buy it then developers are not gonna hop onto it.	
54	Meh. Pass.	
55	meh. I was quite underwhelmed by the AR-part of the AR-headset. Almost all they showed was 3 open ipad windows, and a glance of a 2-dimensional keyboard floating in mid-air. Just, as I suspected, that seems where stage manager comes from. Where’s the content of your mac’s screen on your actual macs screen? What about using real world objects to interact with the environment instead of pinching the air? (e.g. a fris-bee to drive a vr car) Where was AR directions in maps? What about asking Siri how much beers were left after going to the fridge? It’s more or less an iPad without pen support that you wear on your face. Looks very undercooked as it it now. At least it should have the ability to add Bender’s eyes.	
56	Apple should have invested in AI, not these glorified 3D cinema glasses. You can use Microsoft’s Copilot to quickly create a Word travel itinerary, a Powerpoint presentation for a project at work, or an Excel sheet for your household budget, and so on. Using Vision Pro it would take ages and you would run out of battery before even finishing a single slide. The only thing it excels at is watching TV. Vision Pro is a toy, not a professional productivity tool.	
57	I’d get one if I could afford it! lol! I am impressed with the tech in this thing. Sure it has a battery back and looks bulky, but the potential of this is exciting. This is certainly a device that getting slimmer and lighter will make it even more appealing... and at some point a lower price. Glad to be alive to see the evolution of AR/VR.	

58	It's a niche product (right now), which will eventually get more mainstream once it isn't as bulky and as expensive like it is now. Remember the first laptops, how expensive and bulky they were, and really nobody used them outside movies.	
59	Agreed. No one knows how this thing will turn out. The technology behind it is insanely good and hopefully it will be more affordable in the future.	
60	I'm the target group. I want it, and I can afford it. There have been plenty of other people on here saying that they will be buying for someone.	
61	Looks nice but I just can't get excited for a headset.	
62	This is a great step for Apple. People complaining about the price remind me of people dismissing the early personal computer as unnecessary and expensive. Same for the original iPad. This has the chance to change how we interact with computers and knowledge. It may fail, of course, but kudos to Apple for trying. AVS Forum	
No.	AVS Forum	Source
63	Even as a fan of VR, I just don't think the flat screen is going away any time soon. I'd argue that most people simply don't care enough about (let's just say passive) entertainment being an immersive experience. I honestly think people to day are just as happy to watch a movie on their mobile device or tablet as anything. Don't even get me started on the ridiculous trend of short form portrait oriented content and those content to consume it. No. This is not going to change home entertainment forever. Not today, and not in the foreseeable future. It's going to be a niche product with minimal buy in from anyone other than the hardcore Apple fan and/or technophile gadget freaks, and an expensive experiment by Apple and any development house willing to hop in for the short term ride. Don't get me wrong. I'm not saying this isn't cool. It's just not the next big thing in home entertainment.	AVS Forum Thread 1
64	No its not going to replace anything. No one wants to wear headgear to watch a movie. This is why 3d never took off.	
65	My 2 cents is this is not going to replace anything. If you're a single dude at home and happy with headphone audio and love spanking the monkey, 100% the way to go. But let's take my theatre now and get 6 of these headsets in there. That's more money spent than I used to purchase the electronics for my theatre and I'm left with headphone audio using these headsets. Are you really going to watch stuff with others with a headset on? Not my cup of tea personally. Similar to a previous post, 3D never took off because of glasses that people didn't want to wear at a price tag of \$200-500 and now you're upping the price tag to \$3500. I don't see this replacing anything. Even for a home of 2, that's \$7k. You can get a decent audio video set up for that price that will have way better quality.	
66	How do lovers nuzzle and cuddle up to watch a movie together with these things on? 🙄 My two cents: these won't replace diddly-poot. They're a niche market, specialty interest item at best.	
67	So now I have to buy 4 of these sets for \$14k for my family, and then another \$14k when we have our friends and 2 kids over to watch with us? Then sit in a big room together instead of watching a big screen? Nothing about this seems appealing in any way. VR is not new and it has not taken off for watching movies, so why would it now? You also would not be able to see your food and beverages while eating.	

68	No, no one wants to have goggles on for two to three hours to watch a movie. It's hard enough to get them to put on glasses. Niche application at best until the price comes down. Will never reach mainstream. See HoloLense.	
69	I could see this being amazing for certain training or simulation applications Not too keen about wearing on my head to simply watch a movie though. That's not my idea of relaxation	
70	Well, I for one have not tested this gear, and I don't know if most people posting here have. I've seen someone in another thread that tried an alternative product worth \$400 and was considering replacing his \$10,000+ projector for it, and therefore I don't think it's unreasonable to think some people will adopt Apple's product instead of a projector or huge TV. I agree with everyone saying it's no replacement for the experience of watching a movie with other people, but if most of the times you watch movies alone this seems like a much more practical (and cheaper) system than a dedicated home theater. We all know lots of people in this forum have spent a lot more than the cost of this for a single piece of additional home theater gear. And we have to consider this is practically a computer with lots of functions other than playing movies.	
71	Not to mention glasses are a whole lot less obtrusive than these goggles and you can't share the experience with a friend or spouse. I stand by my comment. No one wants to wear goggles to watch a movie.	
72	It may not be the next big thing in "home entertainment", but it is highly likely to revolutionize personal entertainment and computing. Very few people are watching movies together these days anyway, look at all the movie theaters closing, think about how most families with a couple of teens are all watching different movies on individual devices from different rooms, think about how many people work from home and are on Zoom, think about how people buy/use multiple monitors for work, think about all the folks in apartments who can't install big honking home theater systems without pissing off neighbors, people on long flights, the list goes on and on. I wouldn't bet against Apple on this one, especially as the tech inevitably gets smaller, lighter, faster, and cheaper.	
73	I would agree to that. If there was ever a company with the cultlike consumer base that will buy into almost anything the company is selling that would be needed for a product like this to revolutionize anything, it would be Apple. I still don't see it being anything more than an overpriced gimmicky gadget, but you do have a point. It is Apple.	

74	Nope. I did a high-end VR experience just last month with my son for his birthday and I have to admit it was freaking awesome. It has come a long way. Having all the zombies attacking you from all sides in a 3D environment was much more believable than I was expecting... One of the girls just couldn't handle it and tapped out. The 3D elements of the program were really great ...they had things down below your ground level and above so it was really immersive and tricky. That being said, after 45 minutes we were all sweaty and tired and two people had headaches. It was a lot of fun but I couldn't imagine doing that for more than maybe an hour or two at the most. If I'm trying to watch a movie I want it on a screen in front of me. I want to look over at my wife and react with her when something happens. I want to sneak a glance at my kid to see if he's ready to be scared again. Maybe this will be something for the future for all the incels and other people that just sit in the computer room all day and don't interact with people in real life? Watching a movie or going to a movie has always been a group thing for me. At least a date or your buddy. I can't remember ever going to a movie by myself.	
75	Not just any headgear. 1 pound of headgear. The weight of even active 3D shutter glasses pales in comparison. Good luck enduring a 2 hour movie with this thing sitting on your face. In typical Apple fashion, they chose features and materials that favor style of function. Instead of taking advantage of the weight savings of an external battery, they used aluminum and glass that weigh about 3x that of cheap plastic used by everyone else. Then they added even more weight with a completely pointless screen on the front of the device.	
76	I don't disagree with you but the 2 headsets would be able to do a lot more than your home theater. You can use it for work when you're away from your home office like in a hotel. It can play AR games. You can learn to play the piano as it overlays the keys you see with prompts. If you have a lot of money but have a small NYC apartment or loft a regular HT isn't an option. If they can really make it seem like you're sitting down in an exotic location watching a theater size screen then that's also an advantage. You can watch movies with friends and relatives who live somewhere else. Now, how you value and weigh these extra features versus the HT and its features is purely subjective. And in terms of games, this is a demo augmented reality game created for the Quest Pro. It gives you an idea of what is possible in terms of manipulating reality.	
77	My understanding is that this would be possible with their product. The front is a display that allows to see the wearer's eyes and the device is capable of AR, meaning that it should be capable to "materialize" a "virtual TV screen" of any size at any place instead of completely replacing the view to "reality". I think as a first product and at that price point it will be only for enthusiasts, but in 5-6 years of evolution it might very well start replacing some traditional TVs.	

78	I won't be a hater just yet. Need to see it in action. I'd like to see a football game and see how it does. But yeah, watching alone and wearing that thing on your head can't be too comfortable unless it's incredibly light. I have a high end pair of headphones that I don't listen on too much. They are so heavy and not the most comfortable. But I say go Apple. I truly doubt in 20 years from now we are all here chatting about the next best flatscreen. And I do like Apple immensely and I doubt this will be a disappointing product. Their future road map may have a much better defined plan on where this tech will go. Down the road the head gear may be gone and so may the traditional flat panel display.	
79	That was kind of my point. I tend not to bet against Apple, they have had a large number of category killers over the years, or pioneered new markets over and over. They also now have an unparalleled amount of money to invest toward their goals of "making something a reality" and they typically deliver products with an unmatched fit and finish. It may take a few iterations, but this could be very revolutionary tech that could create a mobile home theater experience at home or abroad.	
80	I agree with the parallel to headphones. I own a number of higher-end headphones (including a couple TOTL), and I scarcely use them because it's so much more comfortable simply to listen to my speaker-based setup. Similarly, I think these goggles look really cool, and I'd love to give them a try, but can't picture myself using them vs. my 150" screen home theater. If, at some point, we can have AR WITHOUT external hardware (at least the kind you have to strap on), that would be a game-changer.	
81	Not sure if anyone has tried with a Quest 2 or other VR devices, but in theory, couldn't you use an app that supports group watch like Disney+, Plex, etc, where you are logged in with one user on the headset, logged in with another user on a dedicated media device that is connected to the sound system and then play the media synchronously? There might be latency between the two streams which would be likely but if you are on a LAN, it might work. If you are using locally stored media then its possible to get it to play at the exact same time if you do it right. I know this would be a stupid workaround but it could possibly work. When I use my Quest 2 headset and cast to a TV for others to watch, there is so much lag that its sometimes disorienting so if the Vision Pro did it that way, it wouldnt work. Besides that - I will wait to see what kinds of experiences app devs create for the Vision Pro. There is certainly some cool tech in the headset but remains to be seen if there is a "killer app" that will make this thing worth the price. The weight of it does seem like a concern for extended usage. I already have issues using a Quest 2 for longer than 30 mins and when playing games like Pistol Whip where you are moving a lot, you feel the mass of the headset which detracts from the experience. Vision Pro seem to really be focusing on more stationary experiences where they try not to have the user move their head that much which is probably why they strayed away from showing any gaming besides using it as a virtual display.	
82	I figure these are another step on the way to "Ready Player One" territory, but, of course, Not quite there yet. While I think I would find the experience of watching a movie through these to be awesome, I think their primary use will be in gaming, and I don't game.	

83	I just think of it as an alternative computing device. I now have a desktop for the office, a laptop , an iPad and an iPhone. These all serve different functions for different parts of my life. This is also augmented with my high quality Sony headphones when I don't want to disturb my wife or when traveling or at a cafe. I can see the headset fitting In in a similar fashion in some parts of my life, not as a replacement for everything. And I can certainly see myself using it on a plane or while traveling or when I don't want to disturb my family with the home theater sound. Is that worth 3500? Probably not, but it will come down in price as does all technology when adoption ramps up.	
84	Me? Nope. I can't have anything in front of my eyes that close.	
85	There is a VR converted video on YouTube of the opening to Star Wars ANH and it is really good! That would be a game changer for Hollywood blockbusters or games.	
86	Some people on here are talking like Apple is expecting to sell millions of these things and they are in the clouds at \$3,500. I think I saw the stereotypical "Apple tax" comment on here as if you always overpay if it's Apple. Anyone who looks at it this way is missing the point. I will almost guarantee you the most vocal opponents didn't watch WWDC and just read articles. First, \$3,500 is perfectly reasonable for the degree of custom tech built into a low volume product. Tech that, frankly, no one else has ever achieved. This is just a start for them. They set an extremely high bar which no one else will bother with for this level of capability until it becomes commoditized. The idea was to build in the highest degree of capability at a very high level of execution because it serves as a reference platform for developers and an aspiration platform for early adopters. From this device Apple will learn what works, what doesn't, what tradeoffs make sense and which ones don't. You can Create the greatest tech in the lab, but until you put it in the real world you really don't know how the human element will behave at scale, what applications are most desirable or best able to leverage the platform, etc.. This is a moonshot endeavor currently at project Gemini level. FB and Google glass are at the sending dogs and chimps onto near orbit level. You can sell a lot of ads and games at the dog and chimp level. We'll know a lot more as this evolves, and good fortune to the early adopter. The thread starter did a great job of postulating this as a potential future paradigm. I don't think we can know that at this point, but as others have said, I don't think we're going to be arguing about flat screens in 20 years. For sure there's a place for both in interim, though, and maybe later, too.	