



Eye Tracking





EMOTION DRIVES REVENUE



INDEX

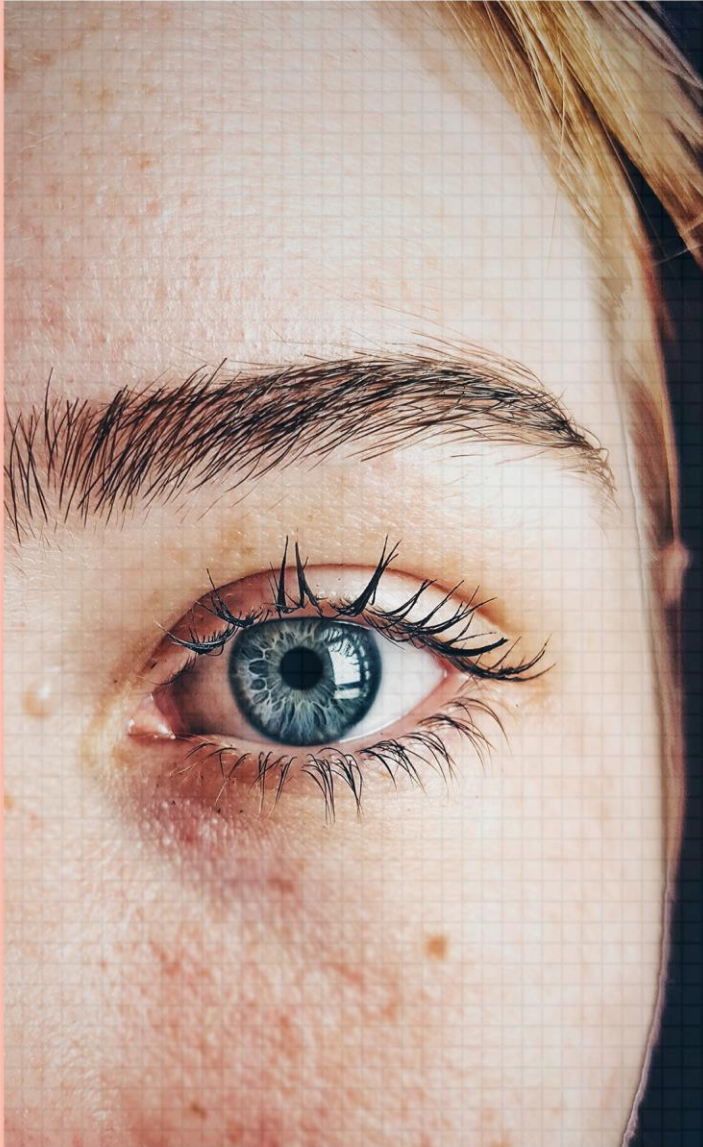
- Overview
- Eye Tracking Technology
- How does Hardware based Eye Trackers work?
- How does Software based Eye Trackers work?
- Benefits of Webcam Based Eye Tracking
- Application of Eye Tracking across Channels



Overview



Affect Lab delivers actionable insights on your marketing content in the most effective way to influence consumers by utilizing AI (Artificial Intelligence) driven advanced webcam-based eye tracking technology combined with native global panel integrated seamlessly into the platform, customizable clutter driven workflows and traditional questionnaires.



Affect Lab provides quick insights to your ad creatives/package designs/ website mock-ups or live websites with easy to understand metrics on consumer attention enabling you to make data driven decisions on which design concepts to pursue and which ones to ignore. In addition to consumer attention, Affect Lab also provides deep insights on time-based creatives that enables you to slice and dice the data for specific duration and specific area in the stimuli (creative/package/website).

Eye Tracking allows brands/agencies to monitor what people do with their eyes, including what they choose to look at, what directional path they choose to look at, how frequently they saw specific sections. Eye Tracking either using hardware or software enables us to measure our eye behaviour. Brands and agencies who want to understand what people look at, can use eye tracking to observe what our brains choose to look at. While these devices cannot explain why our brain chooses to look at specific things, they can measure and record the sequence of visual pointing decisions the brain ultimately makes. Using Eye Tracking data, Brands and Agencies can make powerful inferences about what is visually important to people's underlying cognitive processes.

Currently there are many hardware-based eye trackers which carry a specific software for a specific operating system enabling companies to set it up in a lab environment and have their creatives tested. Given the nature of the environment and the cost associated with it, it has become imperative for brands and agencies to look for other alternatives to measure natural gaze patterns without having to put up a huge investment.



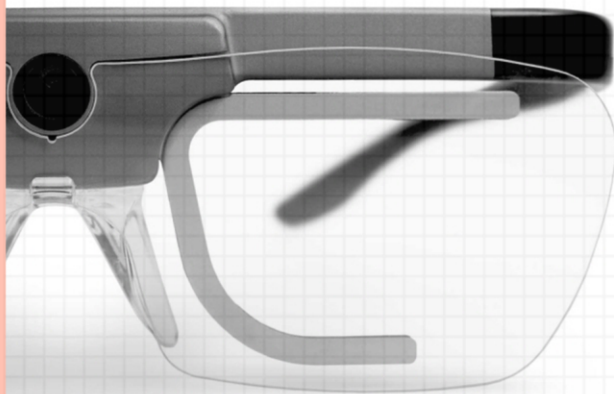
Eye Tracking Technology



Eye Tracking technology has been in use for over twenty years primarily for research oriented towards medical diagnostics. Over the past 10 years, Eye Tracking technology has been widely used to measure the efficacy of marketing creatives and in UX research in a more controlled lab environment. Eye Tracking devices that has been used so far is highly intrusive and extremely cumbersome due to the setup of these devices. However, modern eye trackers have undergone a tremendous shift in the way gaze measurement works and have tried to minimize the cumbersome nature of these devices with packaged software alleviating some of the pain.

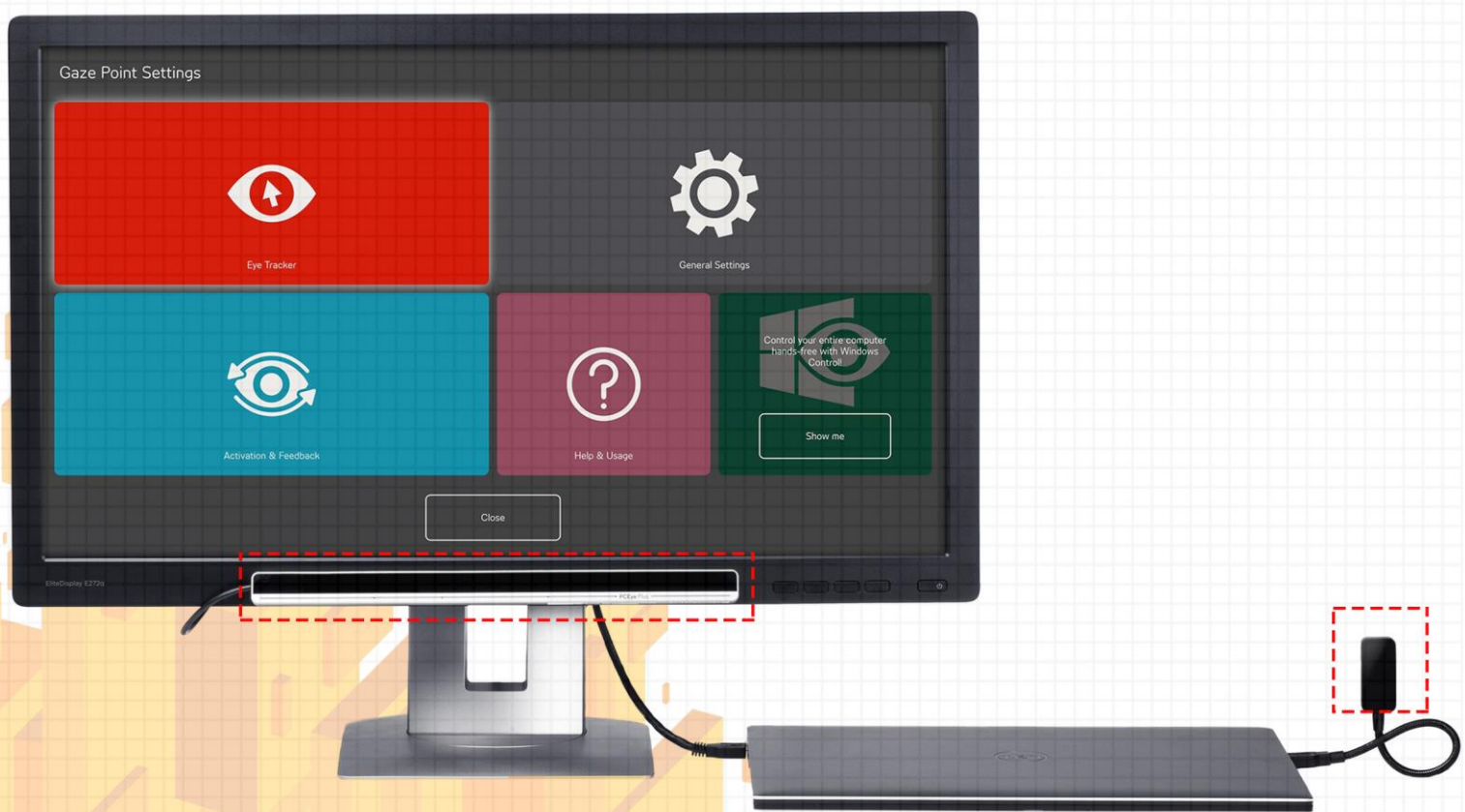
Even with advancements in the hardware, it is expensive and highly unscalable to be able to run multi eye tracking studies simultaneously in one location or in multiple locations without investing heavily into hardware and lab environments. The software components packaged with the Eye Tracking hardware adds further limitations in the way creatives can be setup for exposure. These limitations prevented from making this technology highly accessible to all researchers across the globe.

Eye tracking provides a unique way to observe the allocation of human attention in an extrinsic manner. By identifying where a person looks, scientists are able to identify what guides human visual attention. Yarbus was one of the first to quantify this attentional value by recording eye-gaze patterns, and since then techniques to measure and algorithms to interpret eye movements have only been improved. The main approaches to utilize eye-tracking data are to measure the onset of a saccade – a jerk-like re-allocation of foveal fixation – and smooth pursuit movements, the stable tracking of moving objects. While the former introduces a shift in human attention by voluntarily or involuntarily centring a point of interest at the physically highest resolution (the fovea), pursuit movements are used to follow motion.



Therefore, using eye fixations as a metric of information gathering reveals when, for how long, and how often someone looks at certain parts of an image to obtain visual information.

With advancements in computer vision and artificial intelligence, a new breed of Eye Tracking capability has risen up in the last 5 years that removes the necessity for the hardware completely without compromising on the accuracy of the gaze prediction. This advancement has enabled a completely a new, innovative and cost-effective way to gather Eye Tracking data from remote users sitting in their homes and simulating a real-life environment rather than being forced to walk into a confined lab environment with expensive hardware and cumbersome activation process to capture the eye tracking data.





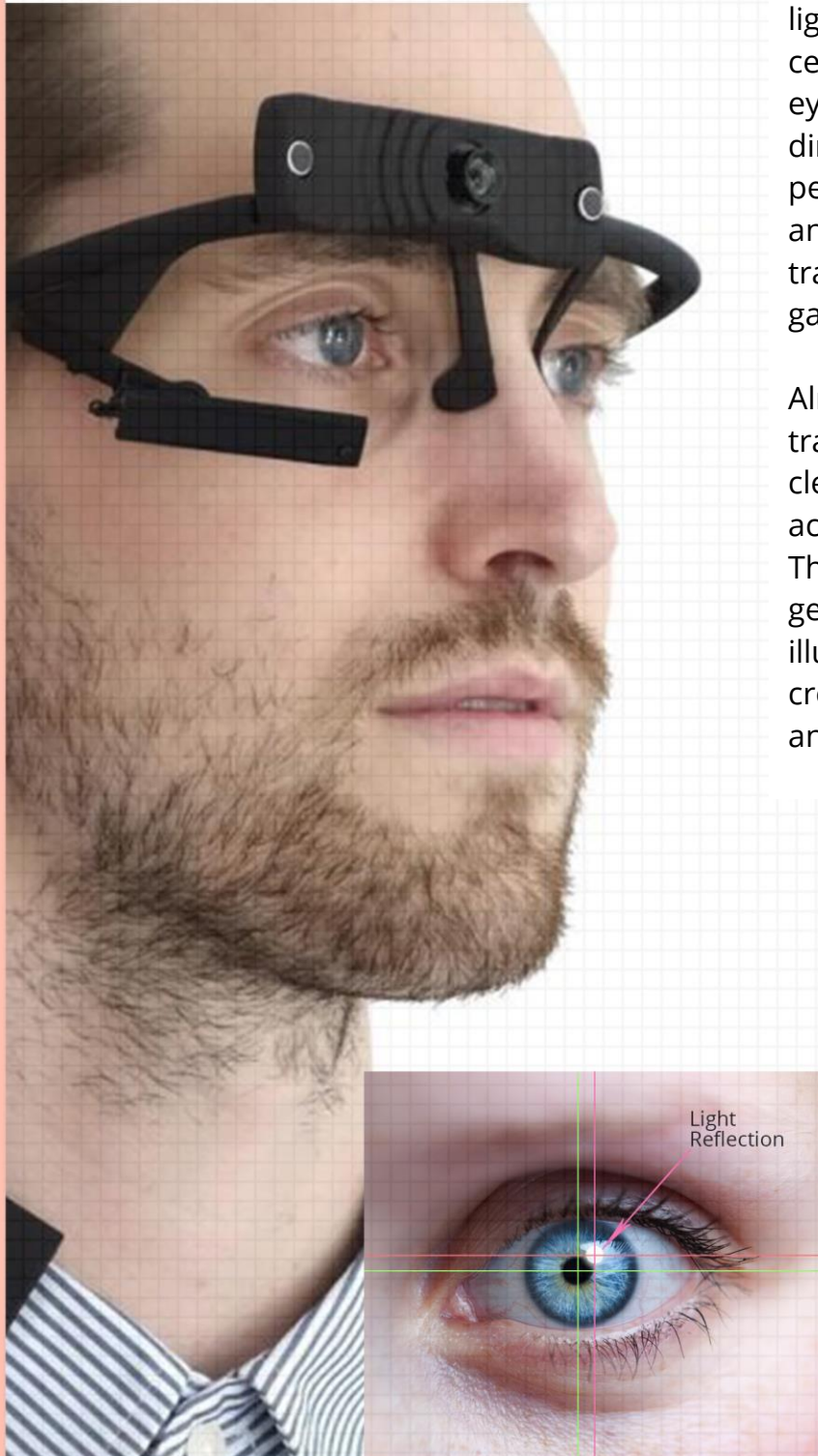
How does Hardware Based Eye Trackers work?



Most modern hardware-based eye trackers utilize high end infra-red technology along with a high-resolution camera to track and predict gaze. This method to track the retina movements using these cameras is called as Pupil Centre Corneal Reflection (PCCR).

PCCR in simplest terms involves identifying and tracking the pupil centre, where light reflects from the cornea. The light reflecting from the cornea and the centre of the pupil are used to inform the eye tracker about the movement and direction of the eye. This data is captured periodically multiple times in a second and goes through multiple data transformations before it gives an exact gaze point.

Almost all the hardware-based eye trackers employ infrared spectrum to clearly demarcate the pupil and to accurately detect the corneal reflection. The visible spectrum will potentially generate multiple reflections, while illuminating the eye with infrared light, it creates a clear demarcation of the pupil and the iris.

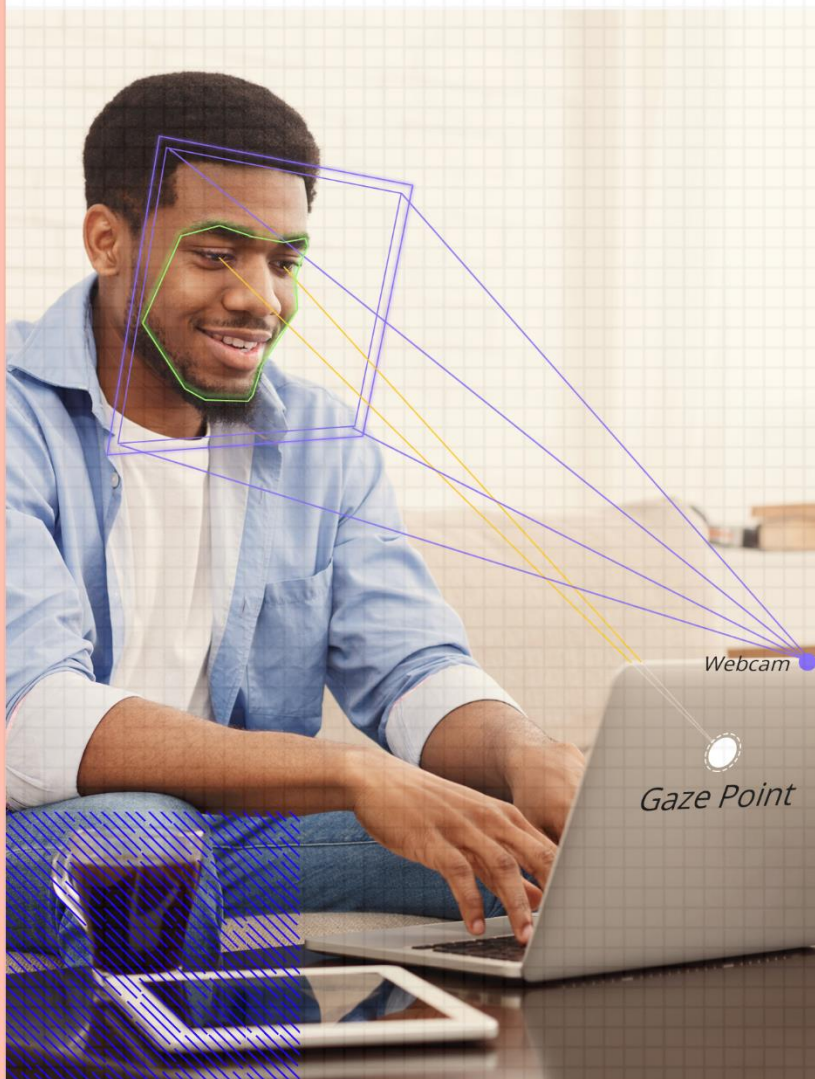




How does Software Based Eye Trackers work?



Online experimentation is emerging in many areas of cognitive sciences as a viable alternative or supplement to classical in-lab experimentation. All this while performance and reaction time-based paradigms have advanced over the last decade or so, eye tracking has got special focus in the last 5 years with advancements in computer vision and artificial intelligence enabling eye gaze monitoring to be conducted using consumer-grade webcams.



Software based eye-tracking typically relies on explicit calibration to develop a self-learning model that relies on user gaze location in coordination with the calibration mechanism. Some of the software-based eye-tracking models also rely on a combination of clicks and mouse movements in addition to the explicit calibration mechanism to develop the self-learning model that is used to predict the gaze patterns. Affect Lab's Software based eye tracking involves a combination of three paradigms to capture the users gaze in a natural environment and generate a highly accurate and reliable heat map. The three paradigms are:

In the **fixation** paradigm, users are shown a dot or a graphically active object on the screen and the user is asked to fixate on the dot.

In the **pursuit** paradigm, users are asked to follow the movement of the target stimulus shown in the screen

With the **natural** gaze, users are free to look at whatever that caught their attention on the screen without having to worry about the natural head movement



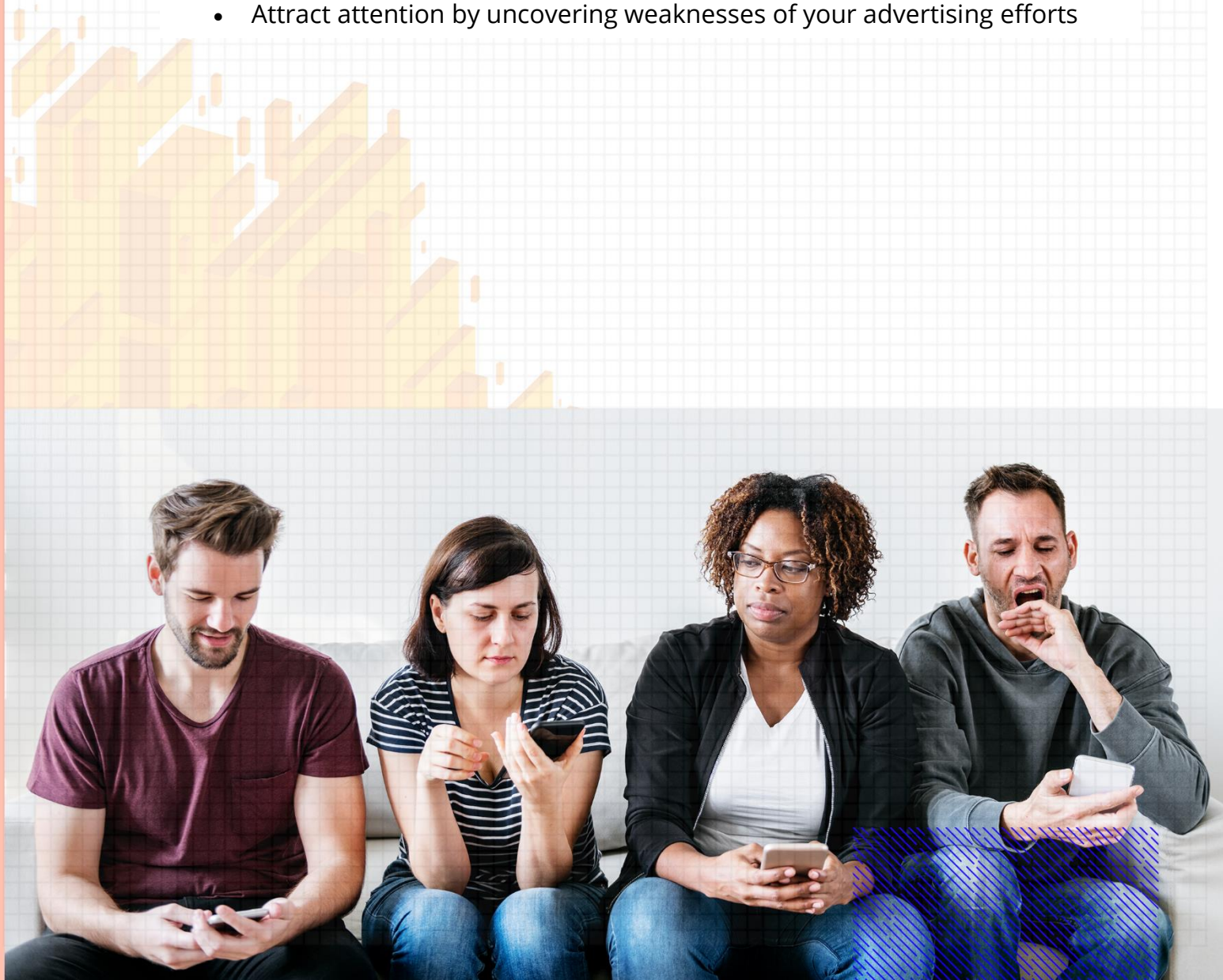
Benefits of Webcam based Eye Tracking



Webcam-based eye tracking carries the promise of making eye tracking a universal technology. An affordable technology which all devices with embedded cameras can support. In fact, today, almost every mobile device and PC is embedded with a camera. In the case of academic or commercial research, this technology has the potential to gather visual attention data of almost every population, cheap and fast – just like giving out an online survey.

Software based eye-tracking has numerous benefits across multiple industries including market research, usability testing and marketing. Some of the benefits are:

- Find out how best to move visitors around the page so that they go to where they want them to go
- Discover which calls-to-action are working best
- Create more conversions as a result of placing key marketing parts in the most viewed positions on a page
- Find out what changes can be done to reduce the bounce rate
- Identify designs that leads to the most customer engagement
- What is the quality of ad and its associated elements based on the viewing order of fixations
- Attract attention by uncovering weaknesses of your advertising efforts





Application of Eye Tracking Across Channels





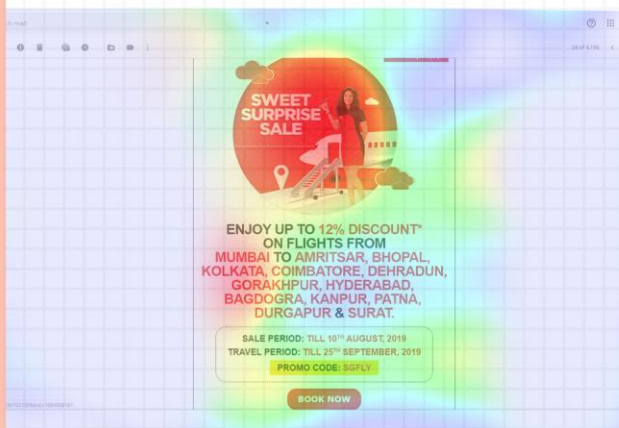
Digital

Users can test and get instant feedback on designs, mock-ups, websites and other digital properties to ensure you are able to capture the user's attention on right elements within the right time.



Press

Information on gaze is significant for the assessment of the media impact in print advertisements. Eye Tracking can precisely determine the direction an observer is looking at, visual elements being noticed in which order and to which degree the information is processed.



Email

Open and click through rates are great to way find out how well your email marketing is working, but they only tell part of the story. With eye tracking, you can check in real-time how people engage with emails and how this directly impacts the conversions.



Mobile

Publishers and advertisers can understand how users engage with content and advertising across mobiles and tablets, and benchmark attention results vs print and desktop norms to help brands, agencies and publishers understand the relative value of different platforms.



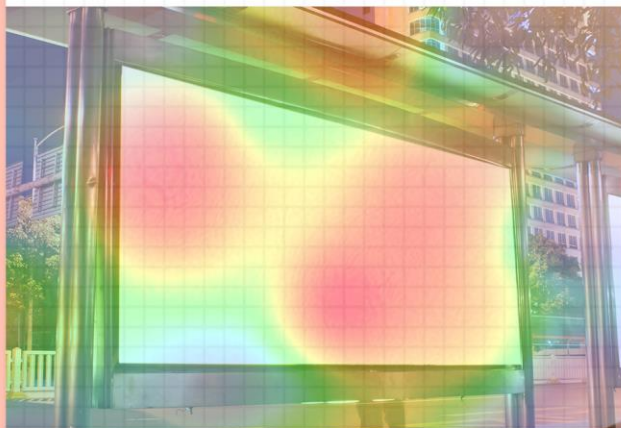
Direct Messaging

Optimizing direct messaging and customer relationship management materials is core to gaining trust and ensuring higher brand impact. With Eye Tracking, users can identify key visual elements, messaging hierarchies, optimal content mixes to increase open rates, engagement levels and conversion numbers.



In-store & Retail

User feedback is captured on the shelf placements, cut through analysis and attention metrics in a complete virtual reality environment understanding a real-life impact, brand recognition and package attraction. Users are able to understand and discover what makes an impact people's in-store shopping experience



Billboard

Using innovative virtual reality environments – agencies, advertisers and brands can understand the impact of the out of the home advertisements on consumers. With Eye Tracking, user's attentional impact in real-life situation and placement impact can be measured with multiple



Packaging

Understanding the visual and emotional impact of packaging at the point of purchase and at home is vital in creation of effective package design. With Eye Tracking, you can test packaging in virtual reality environments allowing us to change, placements, formats, design, clutter break-through etc easily and quickly.



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