

# Vision-based Interfaces Poised to Redefine Digital Experiences for Consumers by End of Decade

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Vision-based interface (VBI) technologies are poised to become the next breakthrough in elevating the consumer experience across a wide range of connected devices, according to Serhad Doken, chief technology officer with San Jose-based Adeia, which invents, develops and licenses fundamental innovations that shape how people explore and experience digital entertainment.



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*Serhad Doken, Adeia*

"VBI is an exciting area of innovation that will revolutionize how people think about human-machine interfaces, enhancing a wide range of activities -- from discovery and navigation to interactivity across devices, services and platforms," says Doken.

The technology presents alternatives to historically available user engagement mechanisms, including keyboards, mouse devices, touchscreens, and voice

applications.

"It is a next-generation user interface that will enable device manufacturers and network service providers – including pay-TV operators and OTT (over-the-top) streaming providers – to optimize operations, reduce friction and improve user experiences," he explains.

As a result, VBI will drastically change the behavior of consumers as they interact with devices to access a wide range of experiences. By the end of the decade, they will be able to navigate interfaces by simply moving their eyes on designer glasses that have integrated VBI into their products.

"This will be possible through eye tracking, where a user can select a menu option, drag an icon or even double click with the blink of an eye," says Doken.

Mature Ecosystem Emerging to Support VBI

From a technological perspective, VBI is already in a fairly mature state. The underlying technologies supporting VBI have been around for a while.

"Most people may remember the introduction of Google Glass a decade ago. However, one factor missing then was a mature surrounding ecosystem to support the experience. The absence of a robust supporting value chain stood in the way of mass adoption. That is not the case today. New technologies are rapidly evolving and are now going through the 'hype cycle' that typically precedes large-scale adoption," he says.

For example, there is now a much higher level of interoperability between different manufacturers of intelligent devices, including mobile phones, smartwatches and wireless earbuds, that are working together to create compelling user experiences.

"We expect a similar dynamic to play out with VBI," says Doken.

One application area expected to popularize VBI significantly revolves around extending the digital engagement surface. Many people routinely use several high-resolution screens for work, watching entertainment or playing games.

"Smart glasses can give users access to infinite virtual monitors spread out over 360 degrees of view. More importantly, smart glasses are portable so that users can take them, and their desired experiences, anywhere," Doken says.

These new experiences are being enabled by significant developments in cloud technology, high-speed networking -- especially the deployment of 5G -- and edge computing. Memory will also be critical in optimizing services consumers and businesses will demand through the rest of the decade and beyond. That is why Adeia is also making ground-breaking research and development investments in hybrid bonding and node technology to enhance the performance of chips that will play an important role in vision-based interface capabilities.

Hybrid bonding and node technologies will increasingly be present across the entire ecosystem from end point devices and edge computing cloudlets to the infrastructures that support cloud



Serhad Doken, Adeia

service providers.

"Until recently, for instance, cloud infrastructures that were hundreds of miles away from the point of functionality resulted in latency that degraded the user experience. Today, the creation of mini cloud data centers- or 'cloudlets' - located much closer to the user - works in concert with 5G wireless and local Wi-Fi networks to create seamless real-time experiences," he says.

While more progress remains to be made, a base of technology already exists. Major players across the digital entertainment and information delivery ecosystem are taking steps to support visual-based interface applications.

"From Adeia's perspective, VBI is one of the next milestone innovations that will usher in an entirely new generation of interfaces, consumer experiences, applications and services. It will create a paradigm shift for the entire ecosystem. There are a lot of challenges that still need to be addressed. But the intersection of 'what could be' and 'how to get it done' is exactly where Adeia thrives," he concludes.

For more please visit: [https://bit.ly/Adeia\\_VBI](https://bit.ly/Adeia_VBI).

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