



# Cyberpunk Meets Eye Care

Bold and revolutionary innovations by a vision care startup

by Roman Meitav



**F**uturistic video games in genres like sci-fi or cyberpunk allow us to see what technological advancements our future may hold. Commander Shepard from the *Mass Effect* series, for example, was quite literally blown to bits and shot into space. But with advanced medical capabilities, he was brought back from sure death. Not only that, he made a full recovery and continued messing around the galaxy.

In a more bleak depiction, *Cyberpunk 2077* offers a variety of cybernetic implants to not only replace damaged limbs and organs but also greatly enhance them. Lost an eye or two? No problem, just slap a cybernetic ocular implant in there and you're good to go. You'll even see better than ever. What's more, you have the implant monitoring your vitals and eye health in real-time! Although we're not there yet, NovaSight's innovations in eye care hope to bring us closer.

Founded in 2016 and currently led by CEO Mr. Ran Yam, NovaSight is an Israeli medical startup that has already made several noteworthy developments in ocular care. The two current flagship technologies developed by the company are EyeSwift® and CureSight™,

which modernize vision assessment and treatment. Both technologies are aimed at children, not only advancing the technological standard but doing so with a patient population that is notoriously difficult to work with accurately and consistently.

## A fully developed assessment technology

On a broader scale, the two product lines NovaSight technologies offer are assessment and treatment, with EyeSwift being the first assessment technology fully developed, distributed by Essilor, and implemented by ophthalmology specialists worldwide.

The kick with EyeSwift is that its technology allows quick and precise assessment of 11 different ocular parameters and conditions through the use of glasses that combine two different types of lenses — red-blue and electronic

— with the onboard software able to automatically control said lenses. This way of testing is not only incredibly fast, taking only several seconds, but also removes factors of human error both on the side of the examiner and patient.

Children are notoriously difficult to work with at times. But with EyeSwift, all of that can be factored out. I mean, what child wouldn't enjoy watching a short video with a cool pair of glasses on?

The future of the EyeSwift technology is just around the corner, with Mr. Yam stating that a newer version, the EyeSwift®Pro, will be launching in the second quarter of this year. "The more advanced version will also be able to perform protocol testing for myopia monitoring, amblyopia monitoring, and digital health," he shared.

## No more eye patch, kid!

On the treatment side of NovaSight technologies,





CureSight is the current flagship advancement that is at the very final stages of its development. This technology is aimed at providing a modern solution to amblyopia, to which the golden standard up until now was slapping an eye patch on for months, or even years at a time.

Aside from the hit to self-confidence that kids experience from the eye patch treatment, and the discomfort of having to function day to day with your “better” eye covered, it is known from literature that said treatment has a success rate of only 50% at best. In more severe cases, atropine drops are administered to forcefully blur the eye, with no option for the child to “take it off” like with an eye patch.

It’s about time we used a more technologically savvy solution for a problem that 3% of the population suffers from, and that could lead to many complications down the line if not treated properly early on.

## A cool, child-friendly way to treat amblyopia

With NovaSight’s CureSight treatment, the patient wears plastic red-blue glasses and can watch a video of their choice. While watching said content, which is altered by CureSight’s systems, receptors track the patient’s eye movements and can selectively blur out the center of vision of the stronger eye, thus achieving an effect in visual acuity improvement similar to what an eye patch could do. Apart from being a lot less frustrating than using an eye patch, this method still works with both eyes, strengthening the 3D perception.

In 2019, NovaSight performed a clinical trial involving 20 children tested at Sheba medical center in Israel. The trial showed that not only did their vision sharpness and stereo vision improved, but said improvement persisted at the half-year mark check-up.

Today, NovaSight is in the final stages of performing a pivotal FDA trial involving 100 children with half undergoing the CureSight treatment and half with an eye patch treatment.

A few weeks ago, Mr. Yam was delighted to point out that the interim point was successful with 90% of patients finishing their treatment. “Although the official results will only be known to NovaSight in a month, the favorable interim results signal the trial to be successful and joining the three current procedural terminology (CPT) codes we already obtained,” he said. “The product will be released to European markets in about a month and U.S. markets in approximately September this year.”



CureSight™

front of a screen, like office workers or even gamers, could benefit from TrackSights capabilities to minimize eye damage from screen usage.

On the treatment side, NovaSight is working on a wearable device for myopia treatment, called ActiveGlass. This device will work similarly to other wearable treatment options for myopia and on the same principle of blurring the patients’ peripheral vision and sharpening the center to help lessen the impact of myopia. While said treatment is viable, it has the issue of having fixed blurred and sharpened areas, heavily limiting the patient’s full scope of vision.

## Setting eyes on the future

Even with the release of CureSight just around the corner and the already successful EyeSwift, NovaSight is not slowing down. Mr. Yam pointed out that the company has a lot of future developments in various stages of research and development. Following the success of EyeSwift, a newer version, the EyeSwift Pro, is set to hit the market in the second quarter of the year, as mentioned above.

Following NovaSight’s two lines of products — assessment and treatment — Mr. Yam gave us examples of future products in each line. On the assessment side of things, NovaSight is working on a software-only solution, TrackSight, which could monitor the user’s eyes in real-time while sitting in front of a screen.

“TrackSight would be able to perform eye assessments similarly to EyeSwift, but there will be no need for additional hardware,” Mr. Yam shared. “More prominently, the technology could track eye movement in real-time to detect eye fatigue and prolonged screen usage, which could damage the user’s eyes and alert the user.”

While the focus would be on children, anyone who spends long periods in

“ActiveGlass resolves this issue by having cameras track the patients’ eyes in real-time and adjusting the blurred area in accordance, greatly increasing the possible vision range,” shared Mr. Yam. ActiveGlass is still a few years away but is already patented and has a working lab prototype.

Novasight is currently at Stage B funding, with the goal of acquiring \$15M. 🍷

## Contributor



**Mr. Ran Yam** holds a Mechanical Engineer (BSc) degree from Technion and has years of experience in ocular innovations, complex multi-disciplinary products, and a rich history of successfully working and elevating startups. On the heels of his success as VP of R&D at Visionix, Mr. Yam showed interest in not only joining a fresh startup but creating and leading one on his own. Together with Dan Oz and Dr. Michael Belkin, the initial idea of using cutting-edge technology to better treat and assess ocular issues was created. In 2016, the idea was made real with the creation of NovaSight, with Mr. Yam at its helm.

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