

Electronic Glasses Bring Sight To Low Vision And Legally Blind

University of Arizona



Tech Launch Arizona licensing manager for the College of Optical Sciences Kennedy Nyairo gets a demo of the eSight system from inventor Hong Hua. Photo: Paul Tumarkin/Tech Launch Arizona

Research developed at the [University of Arizona](#) (UA) has led to the eSight 3, electronic glasses that help the blind see.

“For the first time in my life I clearly saw the details of my mother’s face, her smile and tears on her cheeks,” said Christy Poteat, an eSight wearer.

eSight users report being able to see the face of loved ones, start new jobs or return to work, perform better in school, and feel more confidence in new environments.

 *Time Magazine eSight one of the top 25 inventions of 2017.*

“This is where we see the real-world impact of the leading research being done at the UA,” said Tech Launch Arizona (TLA) Director of Licensing [Rakhi Gibbons](#). “We’re so proud of Dr. Hong Hua and her work, and of the UA’s commitment to contributing to improving lives.”

Working with TLA, the UA office that commercializes inventions stemming from research, the University patented the technologies and licensed them to eSight Corporation, which integrated the inventions into new electronic glasses that deliver the ultimate combination of image quality, field of view, size, weight and cost.

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The glasses capture images with a small camera, enhancing them, and then projecting them onto screens in front of each eye in real-time, providing more visual data to the brain and triggering an increased reaction from the eye. They allow users to adjust zoom, focus, contrast and color.

[See a video demo of the glasses here.](#)

Hua, a professor at UA’s [James C. Wyant College of Optical Sciences](#), has become highly recognized for her research in innovative 3D display technologies, complex visualization systems and novel image acquisition systems. Working with graduate student Jason Kuhn, the team developed technology that has enabled the creation of the latest generation of best-in-class near-eye optics.

Hua was intrigued by the broad social impact of the eSight collaboration. “They said they were developing a system to help low vision people, and the more I listened to them, the more I thought they were doing something really useful and helpful, and I wanted to be a part of it,” she said.

Hua and Kuhn developed a wedge-shaped prism eyepiece design with free-form surfaces that provide both high resolution and a large exit pupil – a combination and level of image quality that has not been previously achieved. The UA invention provides a larger image and thus more visual data to the brain.

eSight Chief Technology Officer Charles Lim said the partnership with UA has helped the company be an innovative leader.

“The IP we worked on with the University of Arizona has been critical in allowing us to develop our proprietary best in class near-eye optics that have allowed eSight to deliver the best combination of image quality, field of view, size, weight and cost to help position us as leaders in this space,” Lim said.

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