

2EyesVision aims to reduce uncertainty in multifocal corrections



With SimVis, clinicians can screen patients suitable for multifocality and reduce patient dissatisfaction. (Photo provided)

2EyesVision (<https://www.2eyesvision.com/en/>) is a Spanish startup specializing in the creation, development, and commercialization of ophthalmic technologies. The company focuses on developing devices for the ophthalmic industry with a special emphasis on correcting cataracts and presbyopia (age-related farsightedness), an ocular condition that affects 100 percent of the population above the age of forty-five.

The company's core technology, SimVis Gekko, is an ophthalmic instrument that enables patients to experience multifocal corrections before they commit to surgery or to contact lens fitting. While multifocal correction, often in the form of contact lenses or intraocular lenses, gives patients corrected vision at different distances without the need for glasses, it is a new visual experience and not all patients can readily adapt to it. With SimVis, patients can try different corrections and choose which works best for them.

2EyesVision is one of ten finalist companies with optics, imaging, and photonics-enabled technologies that is working with NextCorps' Luminate NY accelerator as part of its fourth cohort. Each company received an initial investment of \$100,000 and is participating in the six-month program, which helps the selected companies speed the commercialization of their technologies and businesses. This September at Finals 2021 (date to be announced) they will compete for up to \$2 million in follow-on investment. Funding for the \$25 million program is provided through the Finger Lakes Forward Upstate Revitalization Initiative.

"Technology innovation is leading to tremendous advancements that are allowing health care providers to offer life-changing benefits to their patients," said Dr. Sujatha Ramanujan, managing director of Luminate. "Companies like 2EyesVision are leading the way by empowering patients to take a more proactive role in their treatment decisions, and Luminate is committed to helping them accelerate the availability of SimVis."

The Rochester Business Journal is featuring profiles of the companies that are helping to write the next chap-

ter in Rochester's history as the world's center for optics, photonics, and imaging (OPI).

We caught up with Carlos Dorransoro, 2EyesVision's CEO, to discuss why the company's technology will change the ophthalmic industry.

What problem does your technology solve?

Today only 8 percent of cataract surgeries around the world involve multifocal corrections and these procedures are performed by less than 20 percent of ophthalmologists. Empowering clinicians with tools to reduce the uncertainty around patient satisfaction is key to encouraging more ophthalmologists to provide these highly-effective multifocal corrections. With SimVis, clinicians can reduce patient dissatisfaction (by screening out unsuitable patients), save time (patients can try the corrections in less than 10 minutes), and increase the market's general adoption of multifocal lenses, which contributes to eye clinic profitability.

Who are the founders of 2EyesVision?

The company was promoted and founded by Susana Marcos and myself. We are both scientists with extensive backgrounds in visual optics and technology and we have more than 15 licensed patents. Other founding partners have complementary profiles and extensive multidisciplinary vision in physics, optometry, medicine, biology, engineering, and business development. Among them are some of our key employees: Álvaro Sánchez-Lozano (Director of Business Development), Enrique Gamba (CTO), and Lucie Sawides (Director of Product Performance).

How did you and your team develop the concept for your product?

Susana and I have worked together for 20 years at the Institute of Optics, Spanish National Research Council. Our group, the Visual Optics and Biophotonics Lab, is one of the most recognized laboratories in the field of visual optics. Our research has always been oriented to solving real problems and linked to the needs of the industry. In 2008, the group started developing a technology that could help both patients and doctors in the adoption of multifocal lenses. With more than 28 million cataract surgeries performed every year, SimVis is a game changer for the market.

Why does the world need this product?

Cataracts are a major global concern and currently the leading cause of blindness. In addition, presbyopia, which is the loss of the accommoda-

tion capacity of the crystalline lens, affects 1.8 billion people globally. A common solution for cataracts and presbyopia is to surgically remove the eye lens and replace it with an implant, an artificial Intraocular Lens (IOL). There are a large number of IOLs in the market: monofocal IOLs correct far vision, but they do not prevent the need for glasses at near vision; multifocal IOLs generally provide good functional vision, but at the expense of reducing quality at all distances.

At present, choosing the right correction for patients is challenging as it is difficult for a patient to imagine how vision is going to be with such corrections. Lens manufacturers are increasing their lens catalog, including a wide range of multifocal lenses (trifocal, EDOF) and different combinations among them (one lens in one eye and a different lens in the other to maximize visual acuity at different distances, known as monovision). There are an increasing number of corrections and each patient has an optimal preference, but that preference is difficult to guess. As a result, most patients who may benefit from a successful multifocal IOL implantation or presbyopic treatment are not offered this solution. There is a need for a methodology that helps selecting the optimal correction for each patient.

Can you speak about the SimVis device? How does it benefit both the practice and the patient?

SimVis Gekko is a head-mounted and see-through instrument that provides a realistic perception of the real world with multifocal corrections. Patients can view different objects, such as their phone, a tablet, or a book. They can even see the faces of their relatives with multifocal vision, or simulate real life activities. It is also a light and portable system which reduces space in the clinic.

How long have you been working on this technology?

The first patent was filed in 2009, followed by three other patents in 2013, 2015 and 2017. In 2015, 2EyesVision was founded and licensed with global exclusivity for the patents that protect the SimVis technology.

Who is the target audience for your product?

Our technology targets eye care practitioners (ophthalmologists, optometrists, etc.), but it is also helpful for patients who will obtain a personalized assessment of treatment as well as lens manufacturers that will, through the use of SimVis, get the opportunity to showcase their designs and obtain data to improve the performance of their lenses.

What made you look to Rochester to further your product?

Rochester is the world's hub for OPI technologies. Having a presence in Rochester provides opportunities in networking, research, market expansion, talent attraction, and joint ventures that are key drivers in our success.

How did you learn about Luminate?

Luminate came highly recommended by our network. After analyzing what it has to offer to companies like ours, we were convinced Luminate would provide a tremendous value, especially in furthering our goal of U.S. expansion.

Tell us about your experience being in Luminate.

The resources and training Luminate provides are proving to be very useful to our development while helping us to overcome challenges, such as R&D optimization and technology developments; optimizing our system's optics, electronics, and software; identifying the best partners for commercialization; providing technical and customer support; and M&A and logistic organization. Additionally, the Luminate cohort is amazing, providing limitless networking opportunities. At Luminate, you can learn new things in every meeting and leverage that knowledge to continually improve as a company and maximize the chances of success.

What are you hoping to achieve during your time in Luminate?

During the program we are focused on maturing as a company, solving current technical challenges, and gaining a wider knowledge of the U.S. market needs. The dynamic of the company also allows us to strengthen local connections with key influencers and leading companies.

If your company wins, what do you plan to do with the follow-on funding?

All of the resources and opportunities Luminate provides are truly company-changing for the participating startups. Additionally, if we end up obtaining further economic support from Luminate, we will focus on establishing a U.S. hub for operations and business development. We are grateful for the opportunity Luminate has given us and would like to thank the Luminate team for its support.

Luminate NY

To receive updates from Luminate, including the time and venue for Finals 2021, visit <https://luminate.org/#subscribe>.