Giving Millions the Gift of Sight

HelpMeSee is eliminating cataract blindness by training thousands of opthalmologists to perform surgery with its Eye Surgery Simulator

INDUSTRY
Medical Technology

Worldwide, over 17 million people cannot see the world around them due to cataract blindness. A cataract removal procedure, performed by a trained specialist in communities where eye surgeons are unavailable, can make a life of difference for millions of people. Using state-of-the-art computer systems, software, and haptic (using touch and force to communicate) feedback mechanisms, HelpMeSee is training thousands of cataract surgeons to perform Manual Small Incision Cataract Surgery (MSICS).

CHALLENGE
- Train as many cataract specialists as possible
- Create a low-cost simulator that could be deployed worldwide

Challenge

HelpMeSee was established as a nonprofit to address cataract blindness that affects millions of people worldwide. Training cataract specialists could solve this situation to perform MSICS, addressing ophthalmologists' shortage in the developing world. Usually, ophthalmologists spend many months or years in training and under the supervision of experienced eye surgeons. This was impossible in many parts of the world. HelpMeSee saw the possibility of training these cataract specialists, but only if a high-fidelity simulator for surgery practice was possible. Using computer graphics and a haptic feedback system, HelpMeSee needed a partner to integrate various technologies to create a training simulator. Trainees would use this simulator to feel the lifelike human tissue resistance of an actual cataract surgery procedure. They could also practice treating the many types of complications that can be simulated in a virtual environment. HelpMeSee needed a solution that had the computing power to mimic the physics of eye anatomy and its biological systems and the virtual surgical instruments used in MSICS.

Solution

HelpMeSee identified several vendors that could supply their engineers with the required server and graphics performance needed. HelpMeSee turned to Supermicro, a vendor of servers that can quickly engineer custom solutions using open standards to create high-performance servers and motherboards. Working together, Supermicro and HelpMeSee spec'd out a solution that contained a state-of-the-art CPU coupled with a high-end graphics card that would respond instantly to trainees' actions. Supermicro and HelpMeSee determined that the ideal system that could satisfy the demanding requirements was a Supermicro motherboard, model C9Z390-CG. This motherboard incorporates up to the Intel(R) Core I9 processor. The graphics card is an NVIDIA RTX2080TI product with 11 GB of memory.

"We are fortunate to work with Supermicro to create a system that cataract specialists can easily gain surgical competence to learn and practice MSICS. By bringing tools such as the Eye Surgery Simulator to hundreds of specialists around the world, we can give millions of people the gift of sight."

–Saro Jahani, President and CEO of HelpMeSee.

Benefits

HelpMeSee is eliminating cataract blindness by training ophthalmologists in MSICS. The HelpMeSee Eye Surgery Simulator, constructed with servers and graphics components, is located in their training sites worldwide. The Eye Surgery Simulator accurately models the human eye and all of the required surgical instruments used in MSICS. Students can become familiar with the MSICS procedure and possible complications well before operating on a patient. Traditional training takes several months to a year, based on previous skill levels and the number of training opportunities available. The HelpMeSee training program with the Eye Surgery Simulator involves only six days of training. Through their simulator and its unlimited supply of virtual eyes, a student can achieve a greater level of proficiency and a safer patient experience.

The Eye Surgery Simulator is shipped to training facilities worldwide
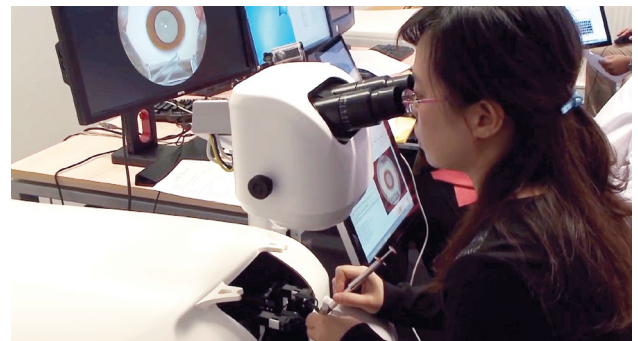
A cataract specialist training on the HelpMeSee Eye Surgery Simulator

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