

OpSim

Vitsim: Vitreoretinal surgeries
Powered by Virtual Reality



SiMedix
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Ayandenegari Hamafarinan Ofogh is a creative pioneer in design and production of advanced technologies and high-tech equipment in Iran. The company has been founded and directed by educated people with high academic degrees and done more than 40 projects proudly. For more information about us, visit our website.

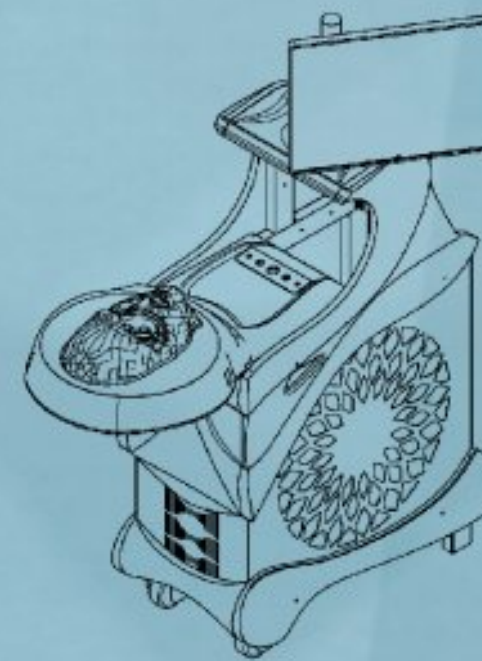


SiMedix is a hi-tech pioneer leader in the business of providing VR (Virtual Reality) medical surgery simulators in the healthcare industry in Asia. We pride ourselves of getting 100 percent of the VR eye surgery simulators market share in Iran. Our clients are among the biggest and largest corporations in the healthcare industry.

SiMedix

OpSim is our first developed ophthalmic surgical simulator designed and manufactured in order to help medical residents to operate in a realistic environment and also keeping patients out of operating rooms.

OpSim



OpSim

VitSim: Vitreoretinal

Department of Virtual Reality

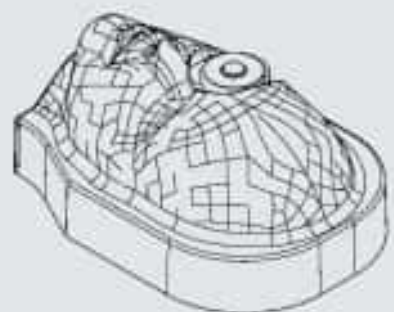
Virtual reality (VR) refers to computer technologies that use software to generate realistic images, sounds and other sensations that replicate a real environment and simulate a user's physical presence in this environment, by enabling the user to interact with this space and any objects depicted therein. Virtual reality is used to provide trainees with a virtual environment where they can develop their skills without the real-world complications. In other words, Simulation Education is a bridge between classroom learning and real-life experience.

VR Department of has three domains of activity: Medical training simulators, custom operations training simulators and VR hardware developments and integrations. SiMedix is the a brand in medical training simulators, which has focused on ophthalmic surgeries. Medical simulators rely on computerized mannequins that perform several functions of human realistically.



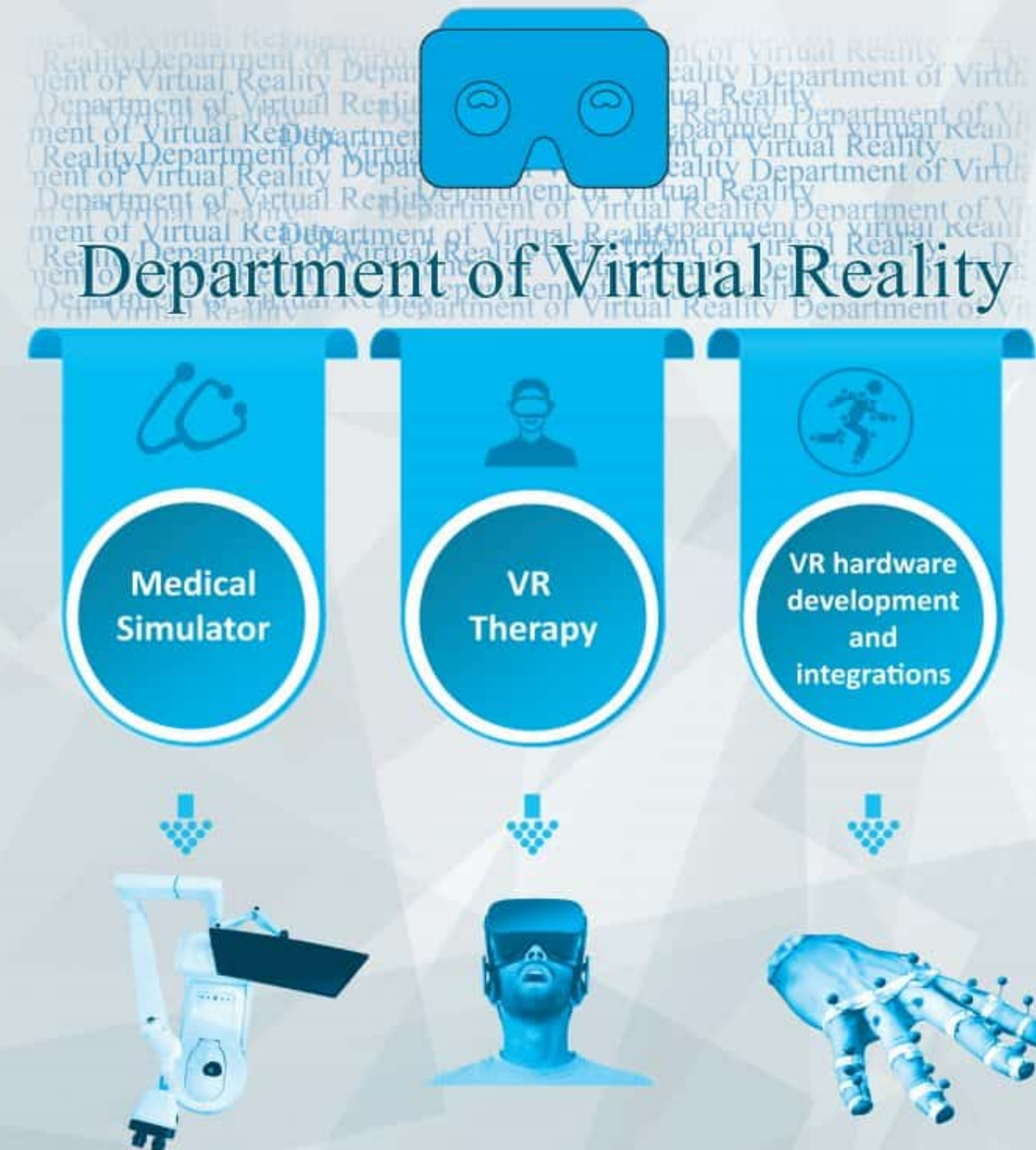
Medical simulators allow trainees to practice what to do in different situations and give them the best possible chance of enhancing skills and reducing medical malpractices. Only by the help of simulators, residents can experience dangerous situations without putting the patient in danger.

Also, simulators have proven far more effectiveness in the amount and retention of knowledge versus conventional classroom teaching:



- Ability to practice potentially risky scenarios in a safe environment
- Increased knowledge retention by more exercising
- reporting in a more complete, consistent and objective form
- demonstration of what Students have learned

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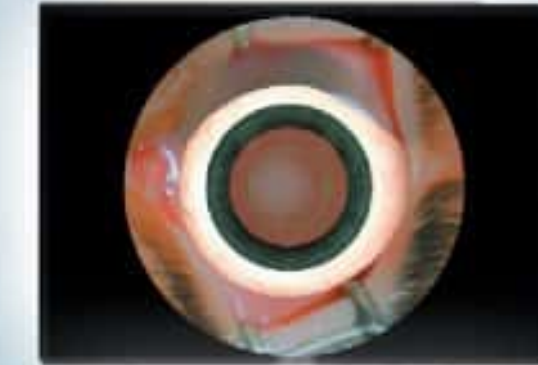
OpSim Subsystem



Stereo Microscope Unit
To create 3D view sense and depth of view



Adjustable stereo vision system
Ergonomic design for microscope to achieve comfortable feeling during surgery



Control Touch Screen
Control monitor for observing surgical process by supervisor



Surgery Interface Head
The patients' head maquette for learning doctors' hands during surgery



Height Adjustable Base



Surgical instruments
Simulator handpieces look like surgical instruments



Instrument Foot Pedal
Instrument foot pedal for ultrasonic injection control and forceps control



Microscope Foot Switch
Microscope foot switch for preparing best view

Simulated for Vitreoretinal Surgeries

Taking the patient out of training procedure

- Reducing the risk of malpractice for patients
- High reliability for training of eye surgeries
- Performing cataract surgeries individually or under supervision of a mentor
- Repeatable training

Expertise as a consequence of experience

- Training primary skills to beginners, such as utilizing microscope, hand-pieces and space constraints
- Training basic surgical methods, such as core vitrectomy, retinal detachment
- Training special surgical techniques
- Enhancement of residents' skills
- Progress evaluation
- Learning complex surgical techniques step-by-step

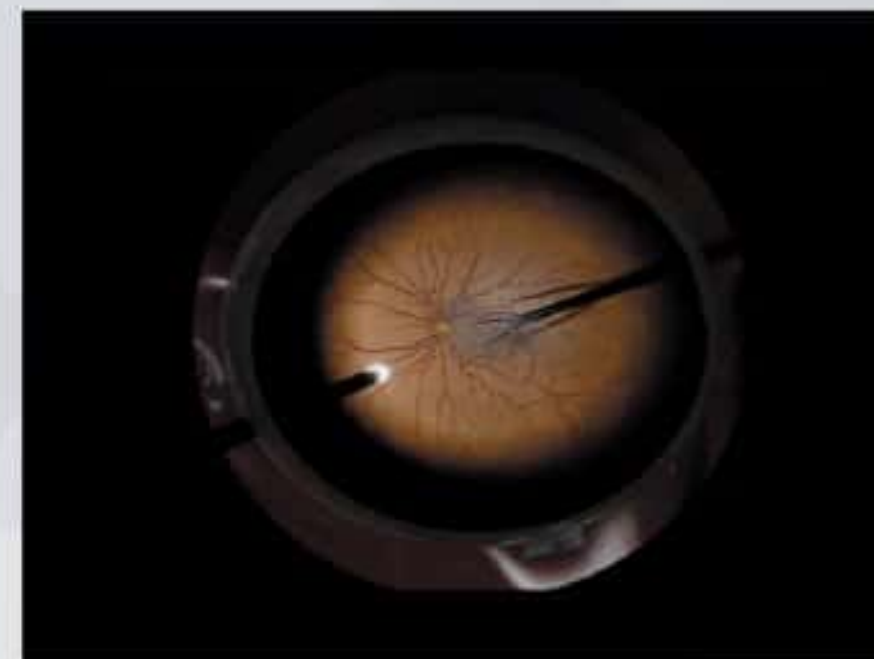


Life-like environment for optimum learning

- Preparing life-like simulation in order to perform eye surgery
- learning different styles to approach the eye by a human head model
- High fidelity simulation of the eye interior environment
- High fidelity modeling of Stereo Microscope

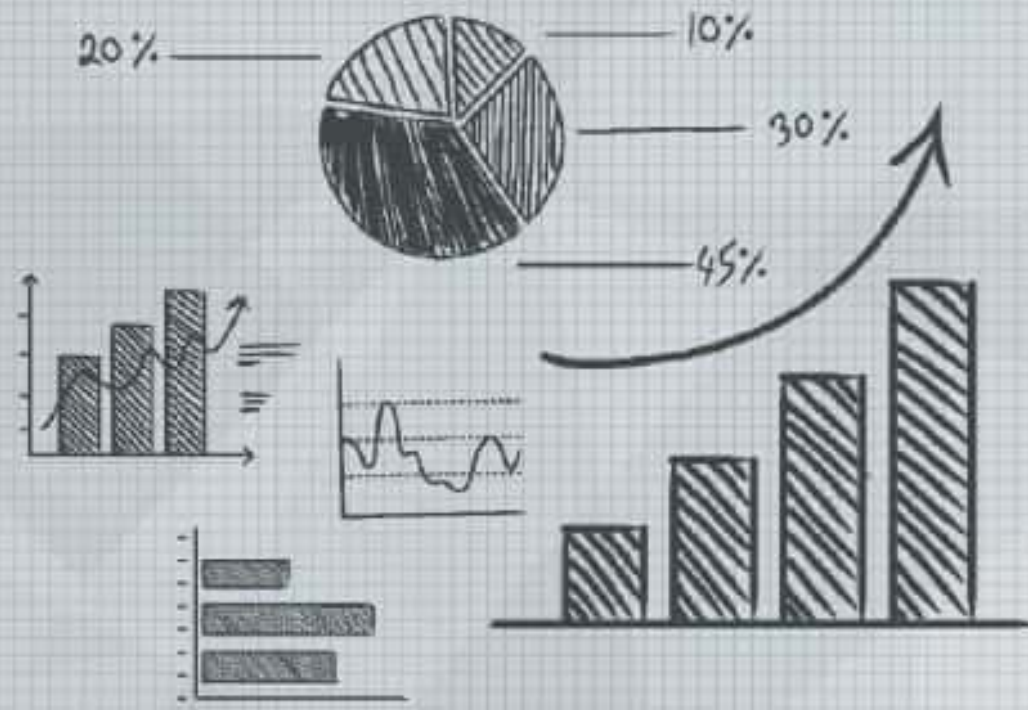
Realistic modeling of OR machine and instruments

- Availability of cataract surgery hand-pieces such as forceps, endolaser and light instrument
- Realistic modeling of surgical fluids, eye pressure and red reflex
- Life-like OR machine interface and functions



Objective Evaluation

- Providing brief description of the resident's performance after completing each part of training
- Recording different information such as microscope handling, surgery effectiveness and interacting tissues
- Monitoring resident's performance
- Providing documented reports for mentor to evaluate resident's development



Importance of Using Simulators

- Evidence has shown that trainees have the highest complication rates at the start of their training, which emphasizes the importance of adequate and appropriate surgical training and supervision.

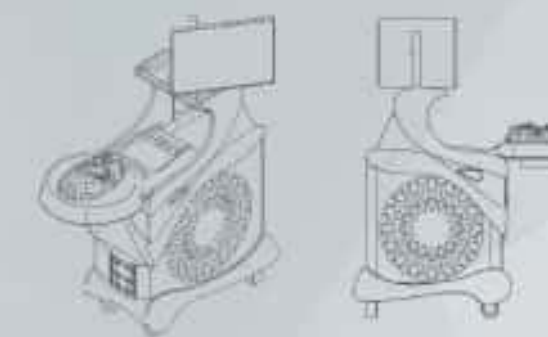


OpSim Vitreoretinal Models

There are three models for OpSim Vitreoretinal simulator:

- The VIT-BS model which simulates basic skills such as:
 1. Hand Tremor Skill
 2. Forceps Instrument Skill
 3. Bimanual Navigation Skill
 4. Endo Laser Skill
- The VIT-ST model which simulates special techniques in Vitreoretinal surgeries, like:
 1. Epiretinal Membrane Removal
 2. Posterior Vitreous Detachment (PVD)
 3. Core Vitrectomy
 4. Retinal Detachment
- The VIT-CT that simulates complementary techniques, such as:
 1. ILM Peeling
 2. Shaving

Model	Description	Software	Option	Hardware
OS-VIT-BS	Basic Skill	OS-VIT-01	Hand Tremor Skill, Forceps Instrument Skill, Bimanual Navigation Skill, Endo Laser Skill	OS-VIT-HW
OS-VIT-ST	Special Technique	OS-VIT-02	Epiretinal Membrane Removal, Posterior Vitreous Detachment (PVD) Core Vitrectomy, Retinal Detachment	
OS-VIT-CT	Complementary Technique	OS-VIT-03	ILM Peeling, Shaving	



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Eye Surgery Simulator
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