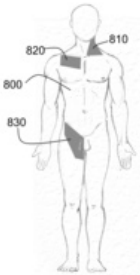
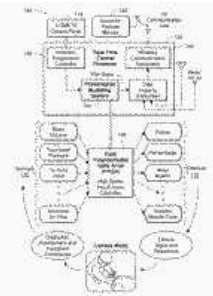
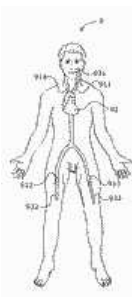
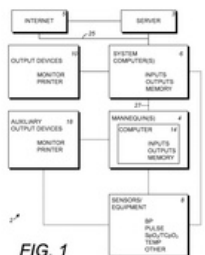
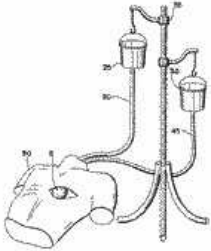
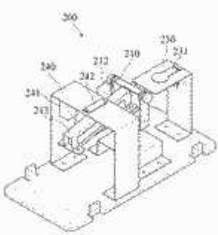
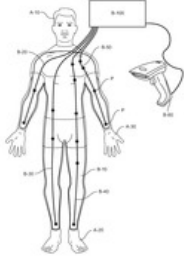
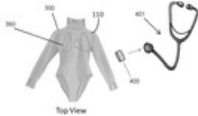
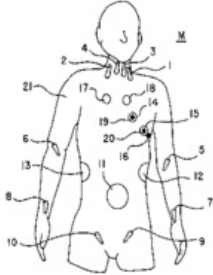
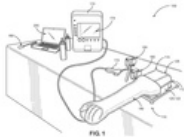
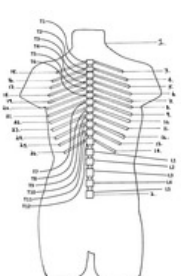
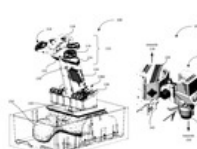
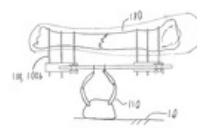
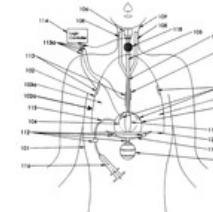
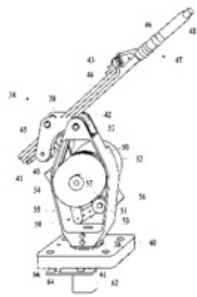
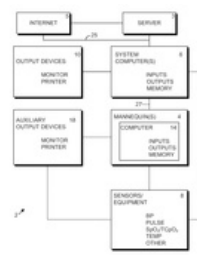
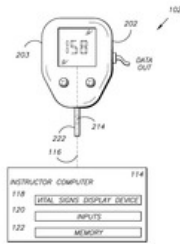
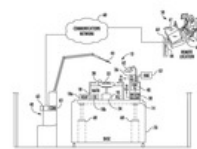
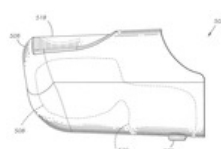
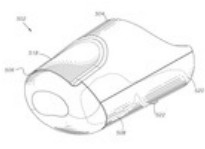
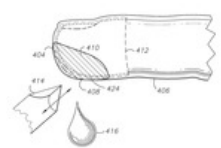


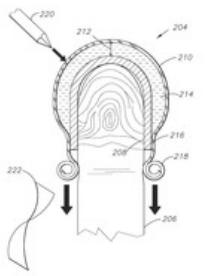
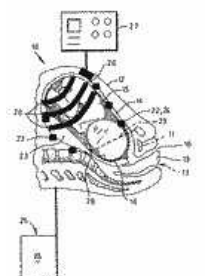
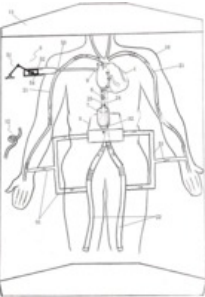
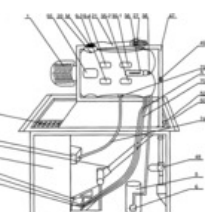
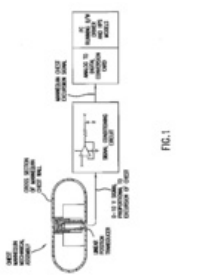
66 results for (venous and simulator and mannequin)/TI/AB/IW/CLMS/DESC/ODES/OBJ/ADB/ICLM/KEYW/TX - Collection: FAMPAT

#	 Title	Publication number	1st app. date	Applicant/Assignee		
1.	 Mannequin for medical training	US20100099067	2009-10-21	LIFE & LIGHT*	100 %	
A mannequin representing a human body, anatomically particularized, adult aged and real sized with real motions. Special care is posed in selecting the materials in order to resemble the natural texture of human tissues. The aim of the mannequin is to allow the acquisition of medical skills in the field of pain management (peripheral anaesthesia techniques, vessels cannulation, port-a-cath implantation) through interchangeable modules simulating a plurality of anatomical variabilities ("drawers").						
2.	System and method for improved medical simulator	WO2014172331	2014-04-15	GENERAL HOSPITAL MASSACHUSETTS GENERAL HOSPITAL*	97 %	
A system and method for providing a medical simulation device that utilizes open software platforms and provides functionality in both software and hardware modules is disclosed. The medical simulation system facilitates plug and play operation with installed hardware and software modules that are automatically recognized by the system for compatibility and the system configures itself according to identification information of the hardware module.						
3.	Medical training system for casualty simulation	WO2008018889	2006-09-28	GENERAL HOSPITAL*	96 %	
Method and apparatus to provide simulation of a human casualty. In one embodiment an autonomous casualty simulator includes a processing module having a scenario progression controller and a physiological modeling system to receive sensor input and to control effectors. The autonomous casualty simulator can be contained in a nominal human mannequin form.						
4.	Medico-surgical simulator and medico-surgical simulation method	WO2017076717	2015-11-02	ANSEL ANTHRITUS NACIONAL DE LA SANTE & DE LA RÂ*CHER MEDICINAL INSERM INSTITUT NATIONAL DE LA SANTE & DE RECHERCHE MEDICALE CENTER NACIONAL DE LA RÂ*CHE CYTIFIQUE CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE CENTRE HOSPITALIER UNIVERSITAIRE DE POITIERS* CNRS - CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE* INSERM - INSTITUT NATIONAL DE LA SANTE ET DE LA RECHERCHE MEDICALE* UNIVERSITE DE POITIERS* UNIVERSITE DE POITIERS UNIVERSITE DE POITIERS	95 %	
The invention relates to a medico-surgical simulator and to a corresponding method. The medico-surgical simulator according to the invention comprises a vascularisation device (1) and/or a ventilation device (2), as well as a regulation device (3). The medico-surgical simulator according to the invention is arranged so as to be connected to a cadaver and to vascularise an arterial system of said cadaver via the vascularisation device (1) and/or to ventilate a respiratory system of said cadaver via the ventilation device (2). The regulation device (3) controls the vascularisation (1) and ventilation (2) devices in such a way as to simulate cardiorespiratory functions for providing surgical training carried out on the cadaver with a very high degree of realism.						
5.	Medical device and procedure simulation and training	CA2937977	2015-01-27	JOHNSON COUNTY COMMUNITY COLLEGE FOUNDATION*	94 %	
A healthcare simulation system including a mannequin with active physiological characteristics, a display monitor adapted for displaying physiological parameters, and a computer for controlling the mannequin and the monitor. A healthcare simulation method including the steps of programming the computer with healthcare scenarios, operating active characteristics of the mannequin, and dynamically displaying physiological parameters corresponding to patient vital signs. Alternative aspects of the invention include tools, such as computers and other equipment, for obtaining and displaying information and for interconnecting and interfacing participants, subjects and controllers in training systems and methods. Additional aspects of the invention include systems and methods for glucometer simulation and training.						

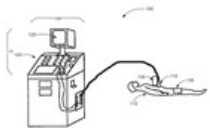
6.	Open chest cardiac massage simulator	US5374194	1994-02-07	WORCESTER POLYTECHNIC INSITUTE*	93 %
A Simulator of the cardio-vascular system is provided for use in open chest cardiac massage (OCCM) resuscitation technique instruction. A molded model of a heart is housed in a thoracic mannequin with synthetic skin pulled aside revealing the cardiac muscle as in a clinical situation. A system of valves and tubes modeling blood vessels connects the heart to inlet and outlet reservoirs simulating venous and arterial input and output supported by an adjustable stand. This device provides tactile feedback to the practitioner and permits variations in flow rates and pressures to simulate various cardiac conditions.					
					
7.	Simulator for injection training applied virtual reality and haptic technology	KR20120009379	2010-08-20	BT*	92 %
PURPOSE: A simulator for injection training applied with virtual reality and haptic technology is provided to simplify the structure thereof and facilitate production and maintenance. CONSTITUTION: A graphic simulator(100) outputs virtual image of a part of intravenous injection. A haptic device(200) comprises an Injection moving module, an injection reaction module, a blood vessel fixing module, and a blood vessel expanding module. The Injection moving module is yawing, pitching, and moving horizontally. The injection reaction module provides the injection reaction which is similar to the real. The blood vessel fixing module simulates the fixing of the blood vessel. The blood vessel expanding module simulates the expansion of the blood vessel. An injection device(300) actually simulates a syringe and a catheter. The controller is comprised of a microprocessor and a communication module. The microprocessor processes signal information of the haptic device, the graphic simulator and the injection device. The communication module communicates between the graphic simulator and the microprocessor.					
					
8.	Modular staged reality simulator	CA2816089	2011-10-28	KINDHEART* UNIVERSITY OF NORTH CAROLINA	91 %
This invention is directed to a modular staged simulator and a process of simulating medical trauma and maladies for the purpose of training or certifying individuals including medical professionals. More specifically, this disclosure relates to ex vivo training exercises as opposed to traditional forms of training using intact cadavers, in vivo surgery on animal subjects; and supervised apprenticeship performing surgery on human subjects with trauma or maladies under the watch of a skilled medical practitioner.					
					
9.	System and method for a wearable medical simulator	WO2016196658	2016-06-01	GENERAL HOSPITAL* MASSACHUSETTS GENERAL HOSPITAL	90 %
A system and method for providing a medical simulation system that adds high- fidelity features to manikin simulators and standardized patients. The medical simulation system includes wearable components that contain modules for simulating pulses, heart and lung sounds, and breathing motion. The wearable components may be coupled to a vital signs display and may be incorporated into a manikin simulator or worn by a standardized patient. The medical simulation system includes an isolation component that isolates the wearable components from the manikin or standardized patient, and isolates the manikin or standardized patient from the wearable components.					
					
10.	Cardiology patient simulator	JP2990602	1998-07-03	KYOTO KAGAKU*	90 %
A tube deformed by supply air is placed in a pulsation position of a mannequin. An air pump expanding and contracting by supply air is placed in a cardiac impulse position of the mannequin. An air bag is placed inside an abdomen or a chest of the mannequin. An air supplier is controlled by a computer.					
					
11.	Vascular access training simulator system and transparent anatomical model	WO2018195178	2018-04-18	TELEFLEX MEDICAL*	87 %
A vascular access training simulator system for training intravascular insertion of a medical device is disclosed. The vascular access training simulator system includes an anatomical training model having clinically relevant ultrasonic properties representative of ultrasonic properties of a human body site for ultrasound imaging. The training model includes a transparent housing, a transparent simulated tissue, at least one simulated blood vessel suspended in the tissue, and a layer of simulated skin covering the housing and the tissue. A first imaging device is records a first video showing a view of an insertion site outside of the simulated skin. A second imaging device records a second video showing the simulated blood vessel through the transparent simulated tissue. A third imaging device is shows an ultrasound view of the simulated blood vessel and the simulated tissue. A monitor displays a composite view of all three videos simultaneously on a single screen.					
					

12.	Catheter surgery simulator and assembly thereof	JP2014228803	2013-05-24	FAIN BIOMEDICAL*	87 %	
PROBLEM TO BE SOLVED: To provide a catheter surgery simulator that can reduce the number of components thereof.SOLUTION: A catheter surgery simulator (1) comprises a blood vessel model (5) having a first mouth part and a second mouth part (6), and a support member (10) for supporting the blood vessel model (5) on one surface thereof. A flow passage (11) is formed in the support member (10). One of the first mouth part and the second mouth part (6) communicates with the flow passage (11), and the other allows insertion of the catheter.						
13.	Assembly of catheter surgery simulator	JP2018022182	2017-10-06	FAIN BIOMEDICAL*	86 %	
PROBLEM TO BE SOLVED: To provide a simulator that can reduce the number of components of the simulator in a catheter surgery simulator.SOLUTION: A catheter surgery simulator 1 comprises a blood vessel model 5 having a first mouth part and a second mouth part 6, and a support member 10 for supporting the blood vessel model 5 on one surface thereof. A flow passage 11 is formed in the support member 10. One of the first mouth part and the second mouth part 6 communicates with the flow passage 11, and the other allows insertion of the catheter.SELECTED DRAWING: Figure 1						
14.	Surgical simulator	US20170330488	2017-08-01	MEDALUS*	86 %	
A mannequin has a torso portion with a simulated vertebral column and anatomical aortic zones for the REBOA procedure. A fluid pressure source provides a fluid to the torso portion, and a fluid collection reservoir receives fluid from the torso portion. Conduits extend between the fluid pressure source and collection reservoir. Valves associated with the conduits and the fluid pressure source and collection reservoir may be positioned to simulate injuries in the first, second and third REBOA zones. A main conduit simulates the aorta. A simulated groin portion is configured to receive a REBOA catheter. The simulated groin portion has a conduit simulating the femoral artery.						
15.	Trauma training simulator with event-based gesture detection and instrument-motion tracking	US20150037775	2014-07-30	GENERAL HOSPITAL*	85 %	
Surgical trauma training simulator system including replaceable trauma module structured to mimic a portion of human anatomy and, in particular, a prosthetic anatomical structure containing a periorbital structure that includes an eye-lid and an eye globe in cooperation with a drive mechanism. The system is structured to provide, in operation, an event-driven surgical gesture recognition-based tracking of the simulation of the surgical procedure by the trainee and, in absence of expert trainer, provide visual feedback comparing the tracked simulation with correct sequence of steps of such procedure.						
16.	Combined soft tissue and bone surgical simulator	US20140057236	2013-08-21	SIMQUEST INTERNATIONAL*	84 %	
A surgery simulator includes a physical surrogate surgical interface that represents an interface between a user and a simulated patient in a simulated surgical scenario that involves manipulation of both simulated hard and soft tissue. Sensor(s) sense the user's manipulation of the surrogate surgical interface. A surgical simulation generator generates a real time 3D surgical simulation of the surgical scenario based on the manipulation sensed by the sensor(s). The real time 3D surgical simulation comprises real time simulation state data. The surgical simulation generator renders the real time simulation state data into a real time computer graphics generated video representation of the surgical simulation and provides the real time video representation to a display for real time viewing by the user. The surgical simulation generator simulates effects of the manipulation on both simulated hard tissue and simulated soft tissue of the simulated patient.						
17.	System for simulating diagnostic features of tension pneumothorax and cardiac tamponade within a medical training manikin	US20140272880	2014-03-13	OPERATIVE EXPERIENCE*	83 %	
A system is configured to selectively and reversibly simulate diagnostic features of tension pneumothorax and cardiac tamponade. The system is configured to simulate deviation of the trachea. The system is configured to simulate jugular vein distension.						

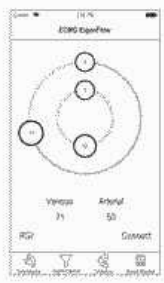
18.	Interface device and method for interfacing instruments to vascular access simulation systems	WO9939315	1999-01-28	HT MEDICAL SYSTEMS IMMERSION MEDICAL* IMMERSION MEDICAL INKOPOREITIDO	81 %	
An interface device (30) and method for interfacing instruments to a vascular access simulation system serve to interface peripherals in the form of mock or actual medical instruments to the simulation system to enable simulation of medical procedures. The interface device includes a catheter unit assembly (34) for receiving a catheter needle assembly, and a skin traction mechanism (36) to simulate placing skin in traction or manipulating other anatomical sites for performing a medical procedure. The catheter needle assembly and skin traction mechanism are manipulated by a user during a medical procedure. The simulation system receives measurements from interface device encoders and updates the simulation and a display, while providing control signals to a force feedback device to enable application of force feedback to the catheter needle assembly.						
19.	Healthcare training system and method	US20080293025	2007-05-21	JC3 INNOVATIONS*	78 %	
A healthcare simulation system includes a mannequin with active physiological characteristics, a display monitor adapted for displaying physiological parameters and a computer for controlling the mannequin and the monitor. A healthcare simulation method includes the steps of programming the computer with healthcare scenarios, operating active characteristics of the mannequin and dynamically displaying physiological parameters corresponding to patient vital signs. Alternative aspects of the invention include tools, such as computers and other equipment, for obtaining and displaying information and for interconnecting and interfacing participants, subjects and controllers in training systems and methods.						
20.	Medical device and procedure simulation and training	US20160111022	2015-10-20	JC3 INNOVATIONS*	77 %	
A healthcare simulation system including a mannequin with active physiological characteristics, a display monitor adapted for displaying physiological parameters, and a computer for controlling the mannequin and the monitor. A healthcare simulation method including the steps of programming the computer with healthcare scenarios, operating active characteristics of the mannequin, and dynamically displaying physiological parameters corresponding to patient vital signs. Alternative aspects of the invention include tools, such as computers and other equipment, for obtaining and displaying information and for interconnecting and interfacing participants, subjects and controllers in training systems and methods. Additional aspects of the invention include systems and methods for glucometer simulation and training. An embodiment includes a simulated finger configured for holding simulated blood serum and for puncture with a lancet. The simulated finger is configured for sliding over a standardized patient or mannequin's finger. Alternative embodiments include simulated lifelike replicas of other body parts.						
21.	Thoracic surgery simulator for training surgeons	US20170294146	2017-04-04	KINDHEART*	77 %	
A surgeon training apparatus includes an operating table and an immersion tank carried by the operating table and configured to contain liquid. A thoracic animal tissue cassette is configured to hold at least harvested animal lung tissue for surgeon training. An inflator is configured to be coupled to the harvested animal lung tissue. An actuator is configured to relatively move the thoracic animal tissue cassette between an operating position above the immersion tank and an immersed position in the liquid within the immersion tank so that the surgeon can test the harvested animal lung tissue for leaks during surgeon training. The surgeon training apparatus may be at a first location at a first geographic point and a remote surgeon station may be at a second location at a second geographic point remote from the first geographic point to allow a remote surgeon to remotely train.						
22.	Medical device and procedure simulation and training	US20150206457	2015-01-10	JC3 INNOVATIONS*	76 %	
A healthcare simulation system including a mannequin with active physiological characteristics, a display monitor adapted for displaying physiological parameters, and a computer for controlling the mannequin and the monitor. A healthcare simulation method including the steps of programming the computer with healthcare scenarios, operating active characteristics of the mannequin, and dynamically displaying physiological parameters corresponding to patient vital signs. Alternative aspects of the invention include tools, such as computers and other equipment, for obtaining and displaying information and for interconnecting and interfacing participants, subjects and controllers in training systems and methods. Systems and methods for glucometer simulation and training are also disclosed.						
23.	Medical device and procedure simulation and training	US20150140539	2015-01-27	JC3 INNOVATIONS*	76 %	
A healthcare simulation system including a mannequin with active physiological characteristics, a display monitor adapted for displaying physiological parameters, and a computer for controlling the mannequin and the monitor. A healthcare simulation method including the steps of programming the computer with healthcare scenarios, operating active characteristics of the mannequin, and dynamically displaying physiological parameters corresponding to patient vital signs. Alternative aspects of the invention include tools, such as computers and other equipment, for obtaining and displaying information and for interconnecting and interfacing participants, subjects and controllers in training systems and methods. Additional aspects of the invention include systems and methods for glucometer simulation and training.						
24.	Medical device and procedure simulation and training	US20140141398	2014-01-27	JC3 INNOVATIONS*	75 %	
A healthcare simulation system includes a mannequin with active physiological characteristics, a display monitor adapted for displaying physiological parameters and a computer for controlling the mannequin and the monitor. A healthcare simulation method includes the steps of programming the computer with healthcare scenarios, operating active characteristics of the mannequin and dynamically displaying physiological parameters corresponding to patient vital signs. Alternative aspects of the invention include tools, such as computers and other equipment, for obtaining and displaying information and for interconnecting and interfacing participants, subjects and controllers in training systems and methods. Glucometer simulation and training are also disclosed.						

25.	Medical device and procedure simulation and training	US20180158374	2017-11-29	JC3 INNOVATIONS*	72 %
A healthcare simulation system including a mannequin with active physiological characteristics, a display monitor adapted for displaying physiological parameters, and a computer for controlling the mannequin and the monitor. A healthcare simulation method including the steps of programming the computer with healthcare scenarios, operating active characteristics of the mannequin, and dynamically displaying physiological parameters corresponding to patient vital signs. Alternative aspects of the invention include tools, such as computers and other equipment, for obtaining and displaying information and for interconnecting and interfacing participants, subjects and controllers in training systems and methods. Additional aspects of the invention include systems and methods for glucometer simulation and training. Further embodiments include simulated body parts configured for holding simulated bodily fluid for capillary puncture and/or injection simulation. Simulated body parts of the present invention include simulated fingers, hands, feet, heels, ears, forearms, bones, and others.					
					
26.	Obstetrics training aid	GB0013770	2000-06-06	CYBERMEDIX*	72 %
An obstetrics training aid (10) comprises a housing (12) to simulate the lower abdomen of a female human. A flexible sac or chamber (14) within the housing (12) simulates a uterus and contains a liquid (28) to simulate amniotic fluid. A foetus-simulating body (15), which is located within the flexible chamber (14), is hollow at least within the head-simulating end part (16) and contains liquid dyed with a selected one of a plurality of coloured dyes, e.g. to simulate blood (as can arise in post-partum haemorrhage) and/or to simulate bowel contents (as can arise in foetal distress). The flexible chamber (14) also contains a bag (23) attached to body (15) and simulating a placenta and/or contains replaceable simulations of amniotic membranes to allow the training aid (10) to be used to simulate premature and artificial rupture of such membranes in real life. The housing (12) has a lower opening (18) that is provided with a flexible boundary and is to simulate a cervix. This cervix-simulating opening (18) may be covered by a removable replaceable membrane (19), simulating a perineum and upon which an episiotomy procedure may be practised by a trainee user of the aid (10). A plurality of tubular elements (20) encompass and engage the upper end of flexible chamber (14) around the upper end of foetus-simulating body (15), and valve means are provided for introducing fluid, e.g. air or water, under pressure from a cyclically variable supply - to simulate maternal contractions - into the tubular elements (20) such that they can effect a squeezing action on the rear end of the foetus-simulating body (15) and, due to the latter's curved shape, cause it to move in a direction outwardly of the cervix-simulating opening (18). A plurality of electromagnets (22) located at predetermined positions within the housing (12) co-operate selectively with one or more elements (24) susceptible to magnetisation that are attached to the foetus-simulating body (15) to effect positional changes of the foetal-simulating body (15) within the flexible chamber (14) and/or the housing (12) thereby to simulate a variety of positions and/or presentations of the foetus-simulating body (15) within the simulated uterus (14).					
					
27.	Interactive mixed reality system and uses thereof	WO2011127379	2011-04-08	UNIVERSITY OF FLORIDA UNIVERSITY OF FLORIDA RESEARCH FOUNDATION*	71 %
An interactive mixed reality simulator is provided that includes a virtual 3D model of internal or hidden features of an object; a physical model or object being interacted with; and a tracked instrument used to interact with the physical object. The tracked instrument can be used to simulate or visualize interactions with internal features of the physical object represented by the physical model. In certain embodiments, one or more of the internal features can be present in the physical model. In another embodiment, some internal features do not have a physical presence within the physical model.					
					
28.	Fully simulated vascular access simulation system	CN109147458	2018-10-22	HU XINQUN*	71 %
The present invention discloses a vascular access simulation system full simulation, the housing includes a mannequin, a water tank, a gas delivery device, model of the heart, the heart model is provided with a pressure-tight chamber; distribution of blood vessels in the human body within the housing position is provided with a simulated plumbing; tank is provided with a feeding tube, the upper and lower outflow pipe, the inlet tube at the same time with the upper limb arterial tube and the lower limb artery pipe communicating; with the outlet pipe communicates with one end of the pipe on the inferior vena cava, inferior vena cava and the other end of the conduit communicates with pressure-tight chamber; under the liquid pipe and the lower limb artery communicate with the channel; pressure-tight chamber with the upper limb artery while the proximal ends of pipes, the descending aorta conduit, and a gas delivery device of the transport ports communicate with one another; air intakes air-permeable liquid-tight at the output of the device is provided. The present invention may be omni-directional analog simulation system according to a set of procedures, and can be for pathological conditions and surgery techniques, a technique simulation exercise stand, a sense of reality strong, a great effect of exercise.					
					
29.	Fully-automatic multi-functional integrated puncture training computer dummy	CN107437362	2016-05-27	YINGKOU GUIDONGMEDICALAPPARATUS*	70 %
The invention belongs to the medical teaching equipment technical field and relates to a fully-automatic multi-functional integrated puncture training computer dummy. The fully-automatic multi-functional integrated puncture training computer dummy comprises a high-simulation human body model, a position-automatic changing experimental table, puncture cavities, modules, arteriovenous veins, a liquid injection automatic control device, a fully-automatic arterial pulse simulator and a microcomputer controller. The dummy is characterized in that the high-simulation human body model is installed on the position-automatic changing position experimental table and is provided with various puncture cavities/modules such as pneumothorax, hydrothorax and abdominocentesis modules which are all connected with the microcomputer controller and/or a micro water pump/air pump; double-layer metal mesh electrodes are distributed on the neck, thoracic puncture and lumbar puncture positions of the dummy; the dummy is further provided with kidney, bladder, lymph gland and bone marrow puncture cavities/modules as well as a variety of puncturable central veins and peripheral veins; and arteries are connected with a fully-automatic blood circulation simulator. With the dummy adopted, dozens of puncture items can be provided; puncture position change, liquid injection, gas injection and artery pulsing are completely automated; and sound-light alarms can be given out automatically; life-like simulation effects can be realized; and teaching effects can be significantly improved.					
					
30.	Life support simulation system simulating human physiological parameters	US6273728	1997-09-04	UNIVERSITY OF FLORIDA*	68 %
Method and apparatuses for simulating life support procedures in real-time using a mannequin. The apparatuses and methods are operable for a number of therapeutic interventions and provide for a number of appropriate simulated physiological and pharmacological responses. Included interventions are chest displacement, the application of gas pressure to the upper airway, inspiratory gas composition, administration of a fluid, or administration of intravenous drugs. These interventions provide a variety of appropriate responses (and misapplication of an intervention by a trainee provides a corresponding appropriate response).					
					

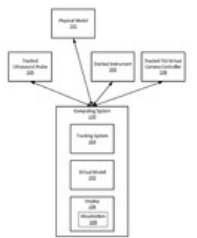
31.	Training, skill assessment and monitoring users in ultrasound guided procedures	WO2012123943	2012-03-13	MOR RESEARCH APPLICATIONS*	68 %
There is provided in accordance with an exemplary embodiment of the invention a method for monitoring or training in ultrasound guided procedures. There is also provided in accordance with an exemplary embodiment of the invention a pregnant woman simulator for simulating ultrasound guided procedures.					



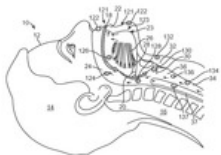
32.	Devices and methods for dynamic extracorporeal membrane oxygenation simulation	WO2016168348	2016-04-13	CURTIS LIFE RESEARCH*	67 %
The present disclosure generally relates to medical training, and more particularly but not exclusively, to training performed for extracorporeal support techniques such as extracorporeal membrane oxygenation ("ECMO"). In one non-limiting embodiment, a system includes a clamp defining a space to receive a conduit of an ECMO circuit, an articulator operably coupled to the clamp to change a dimension of the space, and a simulator module communicatively coupled to the articulator to transmit control signals. Additional and/or alternative embodiments, forms, features and aspects are disclosed herein.					



33.	Simulation features combining mixed reality and modular tracking	WO2016112383	2016-01-11	UNIVERSITY OF FLORIDA UNIVERSITY OF FLORIDA RESEARCH FOUNDATION*	66 %
Techniques and systems are described for providing modularity, tracking and simulation features of a mixed reality simulator . A modular approach to tracking systems, tracked instruments, and interchangeable modular physical models is described. Enhanced indicators and indicator interfaces improve imaging probe and instrument orientation and alignment with respect to a physical target, including but not necessarily within a combined physical and virtual system; these include anisotropy indicators, indicators of alignment in both in-plane and out-of-plane ultrasound or other imaging techniques, and perpendicularity indicators for better placement of probes and instruments over curved surfaces. A universal needle hub is described that integrates tracking system components and simulation feedback components useably with varying needle types.					



34.	Clinical assessment and training system	US20090208915	2009-02-13	MEDICAL TEACHING SYSTEMS*	65 %
A system for medical training includes an anatomical simulator modeled after at least a portion of a body, the simulator including at least one external surface, and at least one cavity in fluidic communication with the external surface via a cavity. The system further includes at least one internal sensor positioned at an internal location of the anatomical simulator , the internal sensor positioned to receive an internal input based on forces applied from within the cavity, at least one external sensor positioned at an external location of the anatomical simulator and to receive an external input based on forces applied to the external surface, and a feedback display system in communication with the sensors to simultaneously record external sensor readings from the at least one external sensor and internal sensor readings from the at least one internal sensor and at least one time measurement device.					



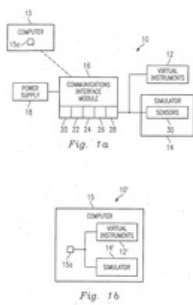
35.	Auscultation training device and related methods	US20090117527	2007-11-06	PAUL LECAT PAUL JACQUES LECAT* PJ LEKA	63 %
A cap composition that can mechanically attach to a stethoscope headpiece, the cap composition having a cap; a cap element having a design that includes a shape and characteristic dimensions that enable the cap to mechanically attach to a stethoscope headpiece; and a speaker attached to and positioned on or at least partially within the cap, such that when the cap is attached to the stethoscope headpiece, the speaker is either touching or proximate to the stethoscope diaphragm such that a sound or signal emitted by the speaker can cause the stethoscope diaphragm to vibrate.					



36.	Surgical simulation system using force sensing and optical tracking and robotic surgery system	WO2018217407	2018-04-19	KINDHEART*	62 %
A surgical simulation device includes a support structure and animal tissue carried in a tray. A simulated human skeleton is carried by the support structure above the animal tissue and includes simulated human skin. A camera images the animal tissue and an image processor receives images of markers positioned on the ribs and animal tissue and forms a three-dimensional wireframe image. An operating table is adjacent a local robotic surgery station as part of a robotic surgery station and includes at least one patient support configured to support the patient during robotic surgery. At least one patient force/torque sensor is coupled to the at least one patient support and configured to sense at least one of force and torque experienced by the patient during robotic surgery.					

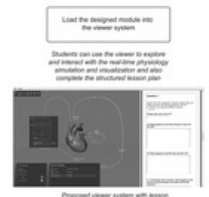


37.	Interactive education system for teaching patient care	WO2005053508	2004-11-23	GAUMARD SCIENTIFIC* GOMADO SCIENTIFIC	62 %
An interactive education system is described for teaching patient care to a user. In one example, the system includes a model of a human body (14), including lungs, a passage in fluid communication with the lungs, and a breathing valve for controlling the flow of fluid through the passage. The system also includes a pneumatic module for delivering pressurized fluid to the fluid passage. A processor may be used to control the breathing valve. A memory is accessible to the processor for storing instructions for execution by the processor, including instructions for manipulating the breathing valve to regulate the flow of pressurized fluid from the pneumatic module to the lungs. The processor may also produce various physiological indicators, including waveforms, a pulse, etc. The indicators may be prerecorded or dynamically generated. An external device may be used to wirelessly control the processor.					



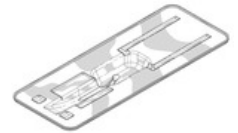
38. **Physiological simulator toolkit and viewer** US20130149684 2012-12-10 **UNIVERSITY OF FLORIDA RESEARCH FOUNDATION*** 60 %

An interactive simulation tool and viewer is provided where a user can build upon a defined ontology; specify custom displays of dynamic variables; specify custom meshes; edit the topology of a compartmental model to create different scenarios; and create questions that are integrated-with, and based-upon, the simulation. In addition to the authoring portion, the generated simulation scenarios can then be executed and interacted within the viewer.



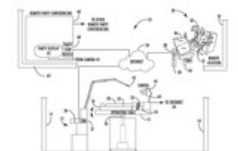
39. **Surgical tray** CA2857862 2014-07-25 **KINDHEART*** 52 %

A surgical simulation assembly is provided for simulating realistic surgery on animal organs or human cadavers. The surgical simulation assembly comprises a generally flat tray having a central indentation for receiving an organ, at least one drainage aperture and at least one indented trough extending from the central indentation for receiving at least one tube. The tray is assembled with a **simulator** heart and lungs prepped for connection to a variable speed double action air pump assembly that creates both positive pressure and a vacuum on the heart to simulate a beating heart. The tray is supported on a basket having a lower containment portion for containing fluid waste collected during the simulated surgery. The basket is elevated by risers over a base designed to support the assembly.



40. **Telerobotic surgery system for remote surgeon training using robotic surgery station and remote surgeon station and an animating device** US20160314717 2016-04-26 **KINDHEART*** 51 %

A telerobotic surgery system for remote surgeon training includes a robotic surgery station at a first location in a first structure at a first geographic point. Harvested animated animal tissue is at the robotic surgery station and includes harvested animal tissue and at least one animating device coupled thereto. A remote surgeon station at a second location in a second structure at a second geographic point is remote from the first geographic point. A communications network couples the robotic surgery station and the remote surgeon station so that a surgeon at the remote surgeon station is able to remotely train using the harvested animated animal tissue at the robotic surgery station.



41. **Device and methods for medical training using live subjects** WO2009097045 2008-11-21 **LECAT PAUL** 50 %

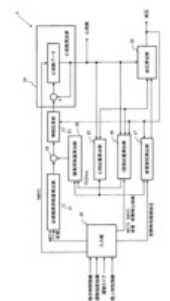
The present invention generally relates to devices and methods for training medical personnel. Some embodiments of the present invention relate to a medical training device, comprising: at least one modular component, the component comprising a means for mounting the modular component to a portion of a healthy live subject; a means for simulating one or more physiological attributes; and a means for controlling the simulation.

42. **Cardiac circulatory organ system model and cardiac load evaluating system** JP2005063155 2003-08-13 **OSAKA GAS*** 42 %

PROBLEM TO BE SOLVED: To provide a cardiac circulatory organ system model for highly precisely calculating a heart rate and blood pressure corresponding to the motions of a human body, and for objectively and simply evaluating a heart load.

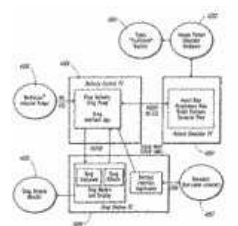
SOLUTION: This system is provided with: a heart rate calculation means 24 to calculate a heart rate in time series on the basis of a motion intensity index corresponding to the type of motion and personal characteristic information affecting the blood circulating action of a human body by using a heart rate calculation model corresponding to each type of motion when the type of motions are isotonic contraction motions, isometric contraction motions, and vertically moving motions accompanied with the abrupt vertical movement of the heart position; a one-time cardiac output calculation means 26 to calculate one-time cardiac output in time series on the basis of rest time one-time cardiac output; and a blood pressure calculation mean 29 to calculate blood pressure in time series on the basis of the heart rate calculated by the heart rate calculation means 24, the one-time pulsing quantity calculated by the one-time cardiac output calculation means 26 and blood resistance.

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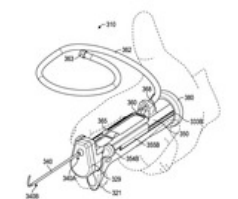
43. **Anesthesia drug monitor** WO03030724 2002-10-11 **UNIVERSITY OF UTAH UNIVERSITY OF UTAH RESEARCH FOUNDATION*** 40 %

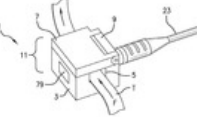
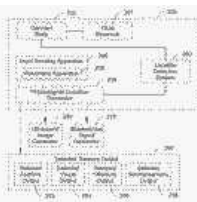
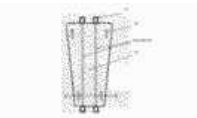
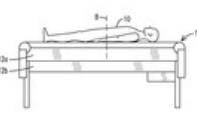
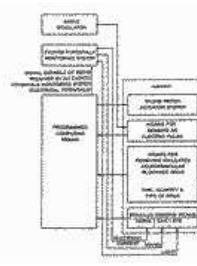
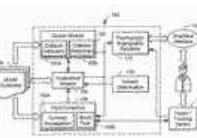
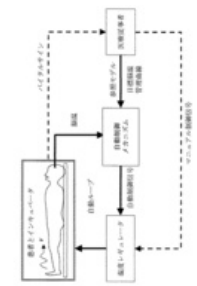
A method, system and apparatus for the monitoring, diagnosis and evaluation (101b, 110a, 117 and 118) of the state of a dynamic drug display system is disclosed. This invention provides for the rapid cognitive grasp of the overall state of drug combination effects with respect to a dynamic system. The system provides for displayed objects (118), which change in real time to show the changes of the functions of the system. In particular, this invention is directed to the processing and display of drug data for the use of doctors in the process of monitoring or administering drugs to patients.

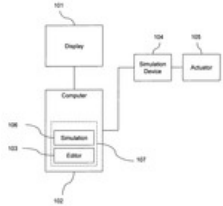
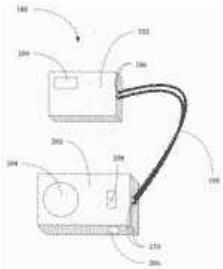
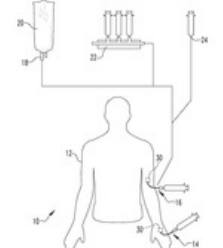
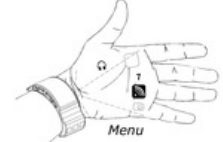
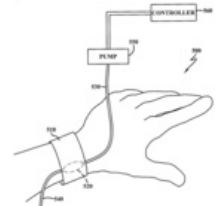


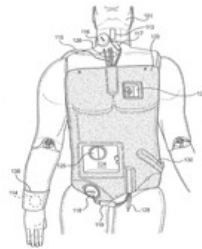
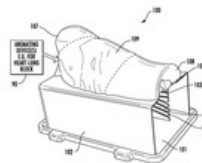
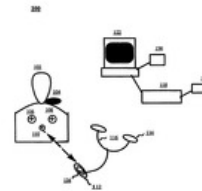
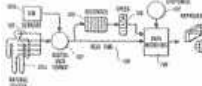
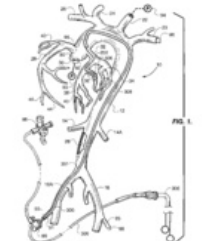
44. **Device and method for single-handed access and insertion of an article** US20170296792 2017-04-17 **ACANTHA MEDICAL*** 39 %

An insertion apparatus for inserting an object into a body comprising a housing, a piercing structure with a lumen, wherein the piercing structure extends distally from the housing, a vacuum chamber that communicates with the lumen of the piercing structure, a plunger configured to fit within the vacuum chamber, a guidewire, and a pressure monitoring channel communicating with the lumen, wherein the insertion apparatus is configured to be operated with a single hand.

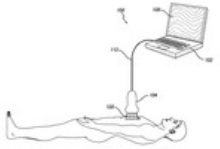


45.	Dynamic haptic robotic trainer	WO2018035310	2017-08-17	PENN STATE RESEARCH FOUNDATION*	37 %
A haptic robotic training system (200) includes a haptic robot arm (300), a position tracking system (210 and 212), a scanning surface (208), a monitor (214) and a computer. The robotic arm (300) includes a haptic feedback system and holds a custom syringe (500) in place. The position tracking system includes a position tracking probe (210) shaped like an ultrasound probe and a motion tracker (212). The scanning surface (208) is a soft pad made from a synthetic phantom tissue. A simulation software receives the positioning data for the syringe from the robotic arm, and for the virtual ultrasound probe from the position tracking system and generates a virtual environment which mimics an actual ultrasound image. The user receives a real time feedback in the form of a haptic feel through the robotic arm, a virtual ultrasound image on the screen, and a performance feedback on the simulation software.					
					
46.	Fluid flow rate measuring and gas bubble detecting apparatus	WO2016138380	2016-02-26	MAQUET CARDIOPULMONARY* MCKE CARDIO PALMARIE	36 %
A fluid flow sensing and bubble detecting apparatus includes a housing comprising a channel configured to receive a tube through which fluid flows; a sensor apparatus disposed within the housing, which includes a first sensor operable to measure flow rate of fluid and to detect bubbles in flowing fluid; and a temperature sensor operable to detect temperature of the flowing fluid; and a processor connected to receive fluid flow rate data obtained by the first sensor, to receive bubble detection data obtained by the first sensor, and to receive fluid temperature data obtained by the temperature sensor, wherein when a tube through which fluid flows is disposed in the channel of the housing, the first sensor measures the flow rate of the flowing fluid and detects bubbles therein, and the temperature sensor measures the temperature of the flowing fluid, and the processor calculates in a short period of time a fluid flow rate corrected for temperature.					
					
47.	Physiology simulation garment, systems and methods	WO2011046945	2010-10-12	MAYO FOUNDATION FOR MEDICAL EDUCATION & RESEARCH*	35 %
Physiology simulation garments, systems including physiology simulation garments, and methods of using the same are described herein.					
					
48.	Medical practice device	WO2008011675	2007-07-26	SIMULATION MEDICAL*	33 %
A medical or veterinary training device, comprising: a plurality of elements arranged in layers, wherein at least two elements are bonded together at adjacent surfaces; wherein at least one of the plurality of elements is adapted to simulate at least one material property of human or animal skin; and wherein at least one non-skin element is adapted to simulate at least one material property of a human or animal tissue or tissue component.					
					
49.	Physical-virtual patient bed system	US20140272871	2014-03-12	UNIVERSITY OF CENTRAL FLORIDA RESEARCH FOUNDATION*	27 %
A patient simulation system for healthcare training is provided. The system includes one or more interchangeable shells comprising a physical anatomical model of at least a portion of a patient's body, the shell adapted to be illuminated from behind to provide one or more dynamic images viewable on the outer surface of the shells; a support system adapted to receive the shells via a mounting system, wherein the system comprises one or more image units adapted to render the one or more dynamic images viewable on the outer surface of the shells; one or more interface devices located about the patient shells to receive input and provide output; and one or more computing units in communication with the image units and interface devices, the computing units adapted to provide an interactive simulation for healthcare training.					
					
50.	Self regulating lung for simulated medical procedures	US5391081	1992-05-13	UNIVERSITY OF FLORIDA RESEARCH FOUNDATION*	25 %
A self-regulating, simulated lung for use in real time in simulated medical procedures comprises at least one bellows capable of receiving and expelling gas, a means for actuating the bellows depending upon a time- and event-based script, a computer model or a combination thereof, at least one mass flow controller capable of directing the gas into the bellows, and a volumetric pump for continuously expelling a constant flow rate of gas from the bellows. The means for actuating the bellows comprises a double acting piston connected to the bellows and having a first constant pressure and a second variable pressure acting on respective sides of the piston, whereby non-linear compliances may be simulated.					
					
51.	Methods and apparatus for simulation of endovascular and endoluminal procedures	WO2006020792	2005-08-10	GENERAL HOSPITAL*	24 %
Methods and apparatus provide realistic training in endovascular and endoluminal procedures. One embodiment includes modeling accurately the tubular anatomy of a patient to enable optimized simulation. One embodiment includes simulating the interaction between a flexible device and the anatomy and optimizing the computation. One embodiment includes replicating the functionality of therapeutic devices, e.g. stents, and simulating their interaction with anatomy. One embodiment includes computing hemodynamics inside the vascular model. One embodiment includes reproducing visual feedback, using synthetic X-ray imaging and/or or visible light rendering. One embodiment includes generating contrast agent injection and propagation through a tubular network. One embodiment includes reproducing aspects of the physical environment of an operating room by simulating or tracking, such as C-arm control panel, foot pedals, monitors, real catheters and guidewires, etc. One embodiment includes tracking instrument position and mimicking haptic feedback experienced when manipulating certain medical devices.					
					
52.	Physiological condition management system and physiological condition management method	JP2004130124	2003-09-17	WAKAMATSU HIDETOSHI	23 %
PROBLEM TO BE SOLVED: To provide a system and a method for automatically performing systemic temperature management, respiratory circulation management and metabolism/anesthesia management to save the life of a patient who is in danger of life. SOLUTION: A full automatic bodily heat management apparatus 101, a full automatic body internal gas management apparatus 201 and an activity level management apparatus 301 are provided to precisely measure and manage the bodily heat, respiratory conditions and metabolism conditions of the patient. The management system is a medical treatment system for organically and integrally managing these apparatuses. The management system is functionally capable of monitoring, determining and controlling the physiological conditions and is further constituted so that the physiological conditions of the patient always follow target values based on medical experience rules, according to the change of metabolism conditions of the patient using a theory of optimum adaptive control for determination processing. COPYRIGHT: (C)2004,JPO					
					

53.	Systems and methods for editing a model of a physical system for a simulation	WO2007059172	2006-11-14	IMMERSION*	21 %
Systems and methods for modifying a medical model of a physical system is disclosed. One disclosed system includes a graphical user interface configured to display at least one parameter associated with the medical model and receive a modification of the at least one parameter. The system also includes a processor configured to receive the modification of the at least one parameter from the graphical user interface and execute a simulation of a part of the medical model including the modification of the at least one parameter.					
					
54.	Apparatus for simulating a pulse and heart beat and methods for using same to train medical professionals	US7510398	2000-10-30	UNIVERSITY OF TEXAS*	21 %
A simulation apparatus and teaching system utilizing the apparatus are disclosed which includes a computer with input and output devices and a simulation apparatus including a housing, where the housing includes a tactile output subsystem for simulating pressure pulses corresponding to a pulse, an audio output subsystem for simulating heart sounds or other bodily sounds and a visual output subsystem for simulating visual attributes associated with a given condition. The output subsystem are under computer control and via interaction with a user, the computer will instruct the output subsystem to generate the symptoms associated with a given condition in a temporally correlated or simultaneous manner so that a user will be able to experience the visual, audio and tactile attributes associated with a given condition.					
					
55.	Drug simulant recognition system and method of employing	WO2013112832	2013-01-25	UNIVERSITY OF PITTSBURGH*	20 %
A system for identifying a drug simulant includes an electronic sensing system structured to measure the value of an inherent property of the drug simulant; a processing unit in electrical communication with the electronic sensing system; and a memory unit in communication with the processing unit, the memory unit having a look-up table including a range of values of the inherent property of a given fluid and corresponding names of simulated drugs associated with each value. The processor is structured to identify a name of the simulated drug corresponding to the drug simulant by receiving signals indicative of the value of the measured inherent property from the sensing system and comparing the value to the look-up table in the memory.					
					
56.	System and methods for on-body gestural interfaces and projection displays	US20170123487	2016-10-28	OSTENDO*	19 %
A wearable system with a gestural interface for wearing on, for instance, the wrist of a user. The system comprises an ultrasonic transceiver array structure and may comprise a pico projector display element for displaying an image on a surface. User anatomical feature inputs are received in the form of ultrasound signals representative of a spatio-temporal cross-section of the wrist of the user by articulating wrist, finger and hand postures, which articulations are translated into gestures. Inputs from inertial and other sensors are used by the system as part of the anatomical feature posture identification method and device. Gestures are recognized using a mathematically-modeled, simulation-based set of biological metrics of tissue objects, which gestures are converted to executable computer instructions. Embodiments of the system disclosed herein may also be used to monitor biometric and health data over computer networks or using onboard systems.					
					
57.	Device and methods for medical training using live subjects	US20100062407	2008-09-09	LECAT PAUL JACQUES CHARLES	18 %
The present invention generally relates to devices and methods for training medical personnel. Some embodiments of the present invention relate to a medical training device, comprising: at least one modular component, the component comprising a means for mounting the modular component to a portion of a healthy live subject; a means for simulating one or more physiological attributes; and a means for controlling the simulation.					
					
58.	Telerobotic surgery system using minimally invasive surgical tool with variable force scaling and feedback and relayed communications between remote surgeon and surgery station	US20180250086	2018-02-20	KINDHEART*	17 %
A telerobotic surgery system includes a robotic surgery station having a first pair of robot arms, each carrying a laparoscopic tool and each having a robot arm drive. A first controller is connected to each robot arm drive. Harvested animal tissue is at the robotic surgery station. A remote surgeon station includes a second pair of robot arms, each carrying a laparoscopic tool and each having a robot arm drive. A second controller receives data regarding movement of the second pair of robot arms and respective laparoscopic tool based on user manipulation of each laparoscopic tool at the remote surgeon station. A communications network couples the first and second controllers with the second controller operative as a master and the first controller configured to control each robot arm drive and effect one-to-one movement of the first pair of robot arms and carried laparoscopic tools as a slave.					
					

59.	Hemorrhage control trainer	US20170193858	2016-01-06	SEGALL STUART C	17 %
A device for simulating wounds and injuries received during a trauma event includes a training suit worn over a manikin. A reservoir containing simulated blood is located between the back of the manikin and the training suit. Located on the training suit are various wound simulators such as leg, abdominal, arm, face, and neck wound simulators. The wound simulators are connected to a pumping and control system located inside the manikin, which controls the system such that pulse rates and blood loss are realistically simulated. The pumping and control system is wirelessly connected to an external control device, which allows a trainer to monitor and control the functions of the trainer. The ability to simulate a cricothyroidotomy, and other medical procedures related to airway management, is also provided.					
					
60.	Surgical simulation system and associated methods	US20170076636	2016-09-15	KINDHEART*	16 %
A surgical simulation device may include a support structure, a tray carried by the support structure, and animal tissue carried by the tray. A simulated human skeleton portion may be carried by the support structure above the animal tissue, and simulated human skin covers the simulated human skeleton portion. The support structure may permit selective horizontal and vertical positioning of the tray relative to the support structure to thereby permit selective horizontal and vertical positioning of the animal tissue relative to the simulated human skeleton portion and simulated human skin.					
					
61.	System, method and medium for simulating normal and abnormal medical conditions	WO2006047400	2005-10-25	EASTERN VIRGINIA MEDICAL SCHOOL* OLD DOMINION UNIVERSITY RESEARCH FOUNDATION UNIVERSITY OLD DOMINION	14 %
The present invention provides a system, method and medium for simulating medical conditions to facilitate medical training, that utilizes a roaming device configured to be mobile; a positioning device configured to determine location information of the roaming device; and a computing device configured to receive the location information, compare the location information with a predetermined set of regions, and transmit information indicative of a medical condition when the location information coincides with the predetermined set of regions.					
					
62.	Method and apparatus for monitoring dynamic cardiovascular function using n-dimensional representations of critical functions	US20050010117	2004-05-14	UNIVERSITY OF UTAH* UTAH RESEARCH FOUNDATION UNIVERSITY OF*	13 %
A method, system, apparatus and device for the monitoring, diagnosis and evaluation of the state of a dynamic system is disclosed. This method and system provides the processing means for receiving sensed and/or simulated data, converting such data into a displayable object format and displaying such objects in a manner such that the interrelationships between the respective variables can be correlated and identified by a user. This invention provides for the rapid cognitive grasp of the overall state of a critical function with respect to a dynamic system. The system provides for displayed objects, which change in real-time to show the changes of the functions of the system. It is a highly flexible system which works with a wide variety of applications, including biological systems, environmental systems, engineering systems, economic systems, mechanical systems, chemical systems and the like. The device of this invention is adapted specifically to providing objects within a frame associated with other objects in a reference grid to provide a graphical representation of cardiovascular function.					
					
63.	Systems and methods for interactive product training	WO2014182626	2014-05-05	KIRSCH SIMON;MERETEI ATTILA	13 %
Provided are systems and methods for training an individual on product usage. The systems include a touch screen interface, a processor, a physical computer readable medium, and program instructions stored on the physical computer readable medium. The program instructions are executable by the processor to receive identification code information associated with a product, acquire a representation of the product from a physical computer readable medium, display the representation of the product on the touch screen interface, and respond to a user interacting with the representation. Methods of the present disclosure include reading a unique identification code associated with a product using an identification code reader of a computer, acquiring a representation of the product from a physical computer readable medium, displaying the representation of the product on a touch screen interface, and allowing an individual to interact with the representation of the product to train the individual on product usage.					
					
64.	Medical angioplasty model	US6062866	1999-03-25	PROM; JAMES M.	12 %
A medical model for teaching and demonstrating invasive medical procedures such as angioplasty. The model is a plastic, transparent three-dimensional, anatomically correct representation of at least a portion of the vascular system and in a preferred embodiment would include the aorta, coronary artery, subclavian arteries, pulmonary artery and renal arteries each defining a passageway or lumen. An access port is provided so that actual medical devices, such as a guide and catheter may be inserted to the location simulated blockage. Fluid may also be introduced to realistically simulate in vivo conditions. Simulated heart chambers of similar construction may also be attached to the aortic valve to further enhance the representation of invasive procedures.					
					

65.	Demonstration device modelling a living organism	WO9914726	1998-09-09	& V FRAUNHOFER* VANDTEN FORSHUNG EH F	9 %	
The invention relates to a demonstration device (401) which is a model of a living organism enlarged at least 50 times. Demonstration devices of this type, for example a model of a person lying down, help explain and show how the biological processes which take place in the living organism are related. The inventive demonstration device (401) has an outer skin. Inside are functional elements representing the organism's organs, vascular system, joints, etc.. According to the invention, it is possible to both walk and travel in the demonstration device and its functional elements.						

66.	Multimodal ultrasound training system	US20120058457	2011-09-23	UNIVERSITY OF CALIFORNIA*	6 %	
The present invention teaches a medical procedure training system based on a PC platform that provides multimodal education within a virtual environment. The system integrates digital video, three-dimensional modeling, and force-feedback devices for the purpose of training medical professionals medical procedures.						