

Jack B. Stubbs

August 2015 – Present. Institute for Simulation Training.

Director, Prototype Development and 3D Print Lab (PD3D).

The PD3D Lab is serves to apply new advances in sensors, microcontrollers, electronics and 3D Print Technologies to define, design, develop and produce prototype devices and systems in the areas of Robotics, Healthcare, and Personal Performance.

October 2012- August 2015 University of Minnesota Medical School Center for Research in Education and Simulation Training (CREST) Program Director, Medical Device Center – Program Director, Biomedical Engineering - Graduate Faculty

Jack Stubbs joined the CREST/SimPORTAL group at the University Of Minnesota Medical School in October 2012, as an Associate Program Director. Responsible for developing and maintaining the Human Tissue Characterization Lab and Database to be used with simulation and synthetic base tissue interactions. He served as Principal Engineer leading the Airway Manikin simulator development program and the Advanced Modular Manikin Trainer design and development with the Army Research Laboratories and TATRC totaling over \$14M of development funding.

Jack served as a Program Director in The Medical Device Center at the U of MN working with the Research Fellows in brainstorming, design and prototype development of new medical devices.

Jack has developed a University/Government/ Industry Collaboration including the Army Research Labs, Stratasy, Bose, 7SIGMA, Vital Imaging and MDC, CREST, BME Computer Science and Mechanical Engineering at the University to develop new simulation platforms.

Jack received an appointment to Graduate Faculty in the Biomedical Engineering School of the U of MN in 2014.

1994-2012 CEO/President of IP Technologies LLC (IPT), a company successfully developing Innovative surgical products. IPT started in 2002, has over 30 issued patents and currently two families of surgical products in the market. The Airseal trocar System and the Anchorport Trocar system are licensed to, and marketed, manufactured and distributed by, SurgiQuest Inc.

1997- 2012 President of Brystin R&D Inc., responsible for product and technology development. Brystin R&D is a small company that partners with others to provide full service research and development as well as manufacturing expertise. Brystin has demonstrated success in the development of surgical devices, sensors, machine vision systems, materials test systems, and distance learning. Brystin R&D customers include:

Ethicon Endo-surgery
Northrop Grumman
Innovata

Indigo Medical, Inc.
Prosolvia A.B.
Precision Gage and Tool

Cordis Webster
Medworks
Point Source

Harris Thomas Industries
MedVenture
University of Dayton
Tech-Way Industries

Go-Golf, Inc.
Central Nervous System Inc.
Michigan State University
Retro-active BioScience

USAF, WPAFB
InfraredX Inc.
MTS Inc.

Brystin procured development funding from SBIR contracts, development agreements with industries and venture capital funding resulting in the develop of surgical devices, control software, and electronic devices successfully into the marketplace

Brystin successfully developed and patented technologies for sale and/or license. 17 patents have been issued and more are pending. We have developed our own products and have successfully marketed them through The Home Shopping Network and QVC television sales and distribution networks.

November of 1991 to April of 1997, Principal Scientist and Technology Manager in the Research and Development Division of Ethicon Endo-Surgery, a Johnson and Johnson Company, I was responsible for Technology Development, Business Assessment Planning, and research project management. Technical areas included biosensors, robotics, imaging, image processing and displays, computer based simulation, and systems integration.

AS the Principal Investigator for DARPA, I lead the design and development of the Operating Environment of the Future Project to integrate all technologies of the surgical room into a functional, modular, intelligent OR system. This project included all aspects, from the development of the Needs analysis by customer, to the formation of company alliances to develop the systems, acquisition of funding, overall design and development, and ultimately to turning over products to marketing and sales. This project also included simulation of the environment, the surgical tasks and the entire event.

The computer based Surgical Simulator "PreCeptor" resulted as an interactive computer based simulator to train students and medical professionals in laparoscopic skills. "PreCeptor" was the first system to be used as a training simulator for laparoscopic surgery anatomy and skills practice.

From 1989 to 1991, As a Partner and Technology Director of Science Services Inc. (SSI), a small research and development company specializing in State-of-the-Art optical metrology instrumentation, I directed the activities of programmers, technicians, and outside consultants and interfaced with optical, computer, electronic, machine shop, and sheet metal manufacturers to bring SSI's products to the market. We developed systems for the automated inspection and analysis of optical parameters with applications ranging from analysis of coherent fiber optic bundles for military Heads-up displays, to the analysis of size and number of cloned cancer colonies for chemotherapy studies. He was also responsible for project reports, proposals, product specification sheets and company advertising material.

From 1984 to 1989, I owned and operated Midwest Optics, a small business active in the area of test and inspection instrumentation. He lead numerous programs in the design and development of automated instrumentation ranging from machine vision systems for General Motors (Delco) in Dayton, Ohio, to specialized cathode ray tube inspection systems for CRT Scientific in Van Nuys, California.

From 1987 to 1989, As a Research Physicist in the Electro-optics Lab at Systems Research Labs, I assisted in the design and development of new Heads-up display (HUD) technologies for use with Night Vision Goggles (NVG) and imaging systems for flight simulation systems. New electro-optical and mechanical designs were investigated, resulting in great enhancements to existing technologies and the development of new designs for military applications. He developed a Gen III Night Vision Camera used for training

flights by the Army Special Operation Forces and Airforce B-52 programs. This system was also used by the U.S. Coast Guard and local police departments for drug enforcement applications.

From 1985 to 1987, I directed the optical metrology effort within the Applied Physics Division at the University of Dayton Research Institute. He was the Principal Investigator for the design and development of a state-of-the-art Infrared Densitometer and Ellipsometer instruments that provided state of the art measurements for the Naval Weapons Center, and the Star Wars Alpha Laser Program. This work was acknowledged by TRW's Award of Outstanding Supplier of The Year (85).

Before joining the University of Dayton, As an Optical Engineer at the Illinois Institute of Technology Research Institute I performed analytical and experimental studies in the area of Rugate optical thin films. This worked lead to the development of a Chemical Vapor Deposition System to deposit controlled thin films of silicon-oxynitride compositional mixtures. This system produced the first Rugate structured thin films for the AFWAL/MLPJ Laboratories at WPAFB.

Patents

- 1 [8,216,189](#) [Continuous gas flow trocar assembly](#)
- 2 [7,854,724](#) [Trocar assembly with pneumatic sealing](#)
- 3 [7,798,998](#) [Elastically deformable surgical access device](#)
- 4 [7,413,559](#) [Gas flow trocar arrangement](#)
- 5 [7,338,473](#) [Pneumoseal trocar arrangement](#)
- 6 [7,285,112](#) [Gas flow trocar arrangement](#)
- 7 [7,220,220](#) [Exercise monitoring system and methods](#)
- 8 [7,182,752](#) [Continuous gas flow trocar assembly](#)
- 9 [6,736,759](#) [Exercise monitoring system and methods](#)
- 10 [6,548,015](#) [Self-simmering fragrance dispenser](#)
- 11 [6,447,527](#) [Apparatus and methods for the penetration of tissue](#)
- 12 [6,056,766](#) [Stabilized trocar, and method of using same](#)
- 13 [6,030,402](#) [Apparatus and methods for the penetration of tissue, and the creation of an opening therein](#)
- 14 [6,021,781](#) [Intraurethral pressure monitoring assembly and method of treating incontinence using same](#)
- 15 [5,406,938](#) [Glare elimination device](#)
- 16 [5,402,225](#) [Optical instrument evaluation using modulation transfer function chart](#)
- 17 [5,398,670](#) [Lumen traversing device](#)
- 18 [5,366,478](#) [Endoscopic surgical sealing device](#)
- 19 [5,009,503](#) [Automated capillary scanning system](#)
- 20 [4,902,132](#) [Automated capillary scanning system](#)

Patent Applications

- 1 [20080086167](#) [Elastically deformable surgical access device](#)
- 2 [20070088276](#) [Continuous gas flow trocar assembly](#)
- 3 [20070088275](#) [Trocar assembly with pneumatic sealing](#)
- 4 [20070088274](#) [Gas flow trocar arrangement](#)
- 5 [20050089502](#) [Effervescent delivery system](#)
- 6 [20050015043](#) [Gas flow trocar arrangement](#)
- 7 [20050004512](#) [Pneumoseal trocar arrangement](#)
- 8 [20040260191](#) [Exercise monitoring system and methods](#)
- 9 [20040204671](#) [Continuous gas flow trocar assembly](#)

International Patents

1. [\(WO 2008/042005\)](#) [ELASTICALLY DEFORMABLE SURGICAL ACCESS DEVICE](#)
2. [\(WO 2008/030256\)](#) [TROCER ASSEMBLY WITH PNEUMATIC SEALING](#)
3. [\(WO 1999/053852\)](#) [APPARATUS AND METHODS FOR THE PENETRATION OF TISSUE, AND THE CREATION OF AN OPENING THEREIN](#)
4. [\(WO 2005/021056\)](#) [EFFERVESCENT DELIVERY SYSTEM](#)

Selected Publications

“Virtual Reality and Applications,” American College of Obstetricians and Gynecologists, Palm Springs CA., January 26, 1995.

“PreCeptor Surgical Simulator,” Interactive Technology and the New Paradigm for Healthcare, Virtual Reality Meets Medicine III. San Diego, January 19, 1995.

“Advanced Technologies in Surgery,” Asociacion Mexicana De Cirugia General,A.C. XVIII Congreso Nacional De Cirugia General, Monterrey, Mexico. October 4, 1994.

“Virtual Reality Applications in Surgery,” Asociacion Mexicana De Cirugia General,A.C. XVIII Congreso Nacional De Cirugia General, Monterrey, Mexico. October 4, 1994.

“Virtual Reality, The Technologies, Applications, and Future Uses,” The Association of Operating Room Nurses Advanced Technology Symposium, San Antonio, Texas, October 28, 1995.

“Virtual Reality and Simulation as an Education, Training and Engineering Tool for the Surgical Environment of the Future,” Virtual Reality Vienna, Vienna, Austria, December 2, 1993.

“Tissue Thickness Profile Scanning for Uniaxial Tensile Testing”, submitted to the DMD2015. Fluvio Lobo Fenoglietto et al.

“Polychromatic Speckling for Strain Tracking of Inhomogeneous Samples Undergoing Biaxial Tensile Deformation”, submitted to the DMD2015. Fluvio Lobo Fenoglietto, et al

“Using Ultrasound as a Technique for Volumetric Modeling of Phantom Tissue” submitted to the DMD2015. Fluvio Lobo Fenoglietto, et all

“Comparing Mechanical Tissue Properties of Simulator, Animal, and Human Tissue”, Sneha Somani, Jack Stubbs BS; Victor Barocas PhD; Robert Sweet MD, American College of Surgeons' 8th Annual Meeting of the Consortium of ACS-accredited Education Institutes (March 13-14, 2015, Chicago, IL

“Simulator development – from idea to prototype to product.” R&D Research Manual, ACS Program for Accreditation of Education Institutes. August 2014

Education

B.S. Degree, Physics, Miami University,
Oxford, Ohio

Graduate Studies, Electro-Optics, University of
Dayton, Dayton Ohio