**Value Proposition**

Medical simulation is experiencing explosive growth and near universal adoption in healthcare training. But, as current commercial simulators are so complex and resource intensive, and students can’t use them on their own; these valuable resources sit idle most of the day. BodyExplorer is a next-generation simulation system for training students and healthcare providers, offering ease of use and automated instruction that will make the proven benefits of simulation-based training accessible to a much larger potential market at lower cost. Automated instruction, objective real-time performance feedback and an intuitive interface create a turnkey system that can be used 24/7 by trainees, reducing the workload for instructors and the need for support personnel and expensive custom facilities.

**Market Opportunity**

The American Association of Medical Colleges has called simulation-based training “arguably the most prominent innovation in medical education in the past 15 years”. The market for patient simulators was $250 million in 2012 and is expected to rise to $612 million by 2017. The customer base in the U.S. alone includes over 7600 sites with over 700,000 trainees, including medical and nursing schools, hospitals, military simulation centers and community and technical colleges.

**Competitive Landscape**

There are over 20,000 simulators currently deployed, but no current commercial simulator offers automated instruction or the ability for customers to buy just the features needed now and upgrade in the future. BodyExplorer is designed with a modular, expandable architecture. Customers can order features “a la carte”, buying just the learning features needed now, but with the ability to expand in the future.

**Technology**

BodyExplorer’s award-winning technology combines augmented-reality (AR) visualization, automatic and objective measurement of learner skills and real-time feedback to enable on-demand, 24/7 learning. A variety of innovative sensors enable naturalistic interactions with common medical devices. Trainees can treat the simulator the same way they would treat an actual patient while benefiting from “x-ray vision” views and informative feedback on the internal consequences of their external actions.

**Stage of Development**

The original BodyExplorer system has been upgraded and duplicated. Usability testing of the system with faculty and students has begun. Other institutions are interested in testing the system, and planning is in progress. Core technologies in BodyExplorer have also been tested by end-users at 4 major conferences. Our automated drug recognition technology was awarded 1st place for Technology Innovation at IMSH, the world’s largest healthcare simulation conference.

**IP Status**

Four patent applications have been filed on enabling technologies for BodyExplorer. Recently, the first two achieved nationalization in July 2014.

**Funding**

BodyExplorer was selected for a Coulter Translational Research Award for 2014-2015 ($100K), in addition to Clinical & Translational Science Institute funding ($21K). Prior funding has been awarded by the US Army ($112K) and the departments of anesthesiology and bioengineering.
Joseph Samosky, PhD

Director, Simulation and Medical Technology R&D Center
Assistant Professor, Department of Bioengineering
University of Pittsburgh

Joseph Samosky is the founding director of Pitt’s Simulation and Medical Technology R&D Center, a multidisciplinary laboratory exploring interactive technologies for simulation-based healthcare training, human performance sensing and smart medical devices, with the ultimate goal of enhancing training and patient safety.

Dr. Samosky’s research at MIT included the development of a 3D visualization system for medical images and a simulator of arthroscopic knee surgery. Prior to joining Pitt, he was a researcher in the Simu-lation Group at the Massachusetts General Hospital and an instructor at Harvard Medical School. At the SimGroup he co-invented and was systems engineer for the COMETS Combat Medic Training System, currently commercialized by CAE Healthcare as the CAE Caesar Trauma Training Simulator.

Education

PhD in Medical Engineering
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Clinical training at Harvard Medical School
MS in Electrical Engineering and Computer Science
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Douglas Nelson is researching advanced interaction methods and natural user interfaces for medical training applications, 3D tracking systems, objective human performance assessment and cognitive tutors for on-demand, self-paced training.

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