Laura Wallace
SensAble Technologies, Inc.
781-939-7437
media@sensable.com

Mary Kae Marinac
MKM Corporate Communications
978-685-3136
mkmarinac@comcast.net

FOR IMMEDIATE RELEASE

As Touch-Enabled Medical Training Expands, New Applications Highlight the Realism of SensAble's Haptic Devices and Software

Skin Punch-Biopsy, Spinal Implant Training Simulators Demonstrate Ways that Haptics Deliver More Realistic, Efficient, and Safer Training Experiences; SensAble's New OpenHaptics® v 3.0 Toolkit Showcased

LONG BEACH, CA and WOBURN, MA January 19, 2009 – At the Medicine Meets Virtual Reality (MMVR) conference opening today in Long Beach, SensAble Technologies, Inc®, a leading provider of haptic devices, toolkits and 3D modeling applications, is highlighting novel touch-enabled applications using the company's haptic devices and software that show how SensAble sets the standard for innovative touch-enabled medical training and simulation. These include a skin cancer punch-biopsy training application already piloted by 7 medical schools, and a spinal implant training application that prevents physicians from harmful radiation exposure. SensAble also is showcasing advanced haptic capabilities for medical simulation made easier by its just-released OpenHaptics version 3.0 software development toolkit for creating touch-enabled applications.

Surgeons need between 60 and 500 repetitions of a procedure to achieve proficiency[i] – yet medical schools usually provide 10 to 20 repetitions on cadavers, with the rest of training left to supervised surgery. Touch-enabled computer simulation and training applications are on the rise as a practical way to enhance surgical training, reduce risks for patients and doctors, and measure proficiency. Studies show that touch-enabled training where students use a precision force-feedback haptic device improves skill acquisition[ii], while presenting zero risk to patients, decreasing operating room and instructor time, and allowing clinicians unlimited practice in a realistic setting as their performance is measured and tallied.

Innovations in touch-enabled medical training on display in SensAble's booth #7 include:

- **Simulating Skin Punch Biopsies -** Developed by the Ohio Supercomputer Center (OSC), the simulation uses SensAble's PHANTOM haptic device to provide force feedback to teach the trainee the optimal placement and expected "feeling" of obtaining skin punch biopsies at different locations on the body – while viewing actual images of lesions uploaded from clinics for use in the simulation. The system includes simulations for the epidermis, dermis, subcutaneous fat of differing thicknesses, and the underlying fascia. As skin cancer escalates to near-epidemic proportions, skilled practitioners who are most likely to encounter suspicious lesions, such as nurses, need adjuvant methods to learn appropriate biopsy techniques and determine when to refer patients to more skilled

dermatologists. Pilot use of the punch biopsy simulator by the seven medical schools in Ohio[iii] has affirmed that it provides a non-threatening and efficient way for practitioners to learn the subtleties of performing a punch biopsy on a variety of lesions. OSC currently is conducting validation studies of the punch-biopsy system, including both medical and veterinary studies.

"We have created several extremely realistic touch-enabled training applications using SensAble's haptic devices and software," said Don Stredney, research scientist at the Ohio Supercomputer Center and director of its Interface Lab. "We look forward to the integration of our efforts with SensAble's new APIs, specifically the depth of penetration feature in OpenHaptics 3.0. SensAble's products and software continue to provide cost-efficient solutions that promote the wider adoption of multimodal simulations for education and training."

- **Spinal Implant Surgery Simulator,** created by Simulution for Zimmer Spine (formerly Abbott Spine) to train surgeons on the exact "feel" of the company's PathFinder® spinal implant technology – with zero risk to patient or clinician. Extreme skill is required to tighten the pedicle screw that is used in the process of fusing vertebrae – yet traditional cadaver-based training approaches are risky, forcing surgeons to undergo long periods of exposure to radiation, as they learned to view the fluoroscopic image and determine the exact placement of the pedicle screw. In Simulution's CyberSpine system, surgeons in training hold a SensAble PHANTOM haptic device in place of the canulation tool and screwdriver used to tighten the screw. The PHANTOM literally pushes back on the surgeon's hand, so they "feel" each step of the procedure. After "virtual surgery," the surgeon's performance is tallied and scored, and their progress can be measured over time.

  "SensAble's artificial touch allows surgeons to repeatedly practice these high-risk surgeries in a very realistic environment, without the traditional constraints and risks," said Bruce D. Anderson, Ph.D., principal investigator at Simulution. "We see the use of haptics in our applications as a key component in helping us improve patient safety and outcomes through better surgical training."

- **OpenHaptics version 3.0 toolkit,** with its new QuickHaptics™ microAPI, dramatically simplifies and streamlines the haptics programming process, and includes features specifically implemented for use in medical applications. OpenHaptics version 3.0 allows programmers with even passing familiarity with C++, to quickly and easily add kinesthetic feedback using SensAble's PHANTOM haptic devices to what a user sees and/or hears on a computer system. OpenHaptics version 3.0 also comes with reusable source code examples that demonstrate how to program key functionality, such as setting different material properties based on depth of penetration for needle insertions.

"Haptics are changing the training paradigm in medicine," said Joan Lockhart, vice president of sales and marketing at SensAble. "With dozens of medical training and simulation applications already in use worldwide – and many more in development – our haptic solutions have emerged as the standard for touch enabling, and enhancing the realism of simulation platforms."

About SensAble Technologies

Founded in 1993, SensAble Technologies is a leading developer of 3D touch-enabled (force feedback) solutions and technology that allow users to not only see and hear an on-screen computer application, but to actually 'feel' it. With 34 patents granted and over 7,000 systems installed worldwide, SensAble Technologies' haptic technology is being used in applications ranging from designing toys and footwear, to surgical simulation and stroke rehabilitation, to dental restorations, as well as a range of research and robotic applications. The company markets its own 3D modeling solutions as well as its haptic devices and developer toolkits to medical, dental, design, and manufacturing companies; educational and research institutions; and OEMs. SensAble products are available through direct and reseller channels worldwide. www.sensable.com.

# # #

---

[i] P.G. Soderberg, et. Al, "Development of a Simulator for Phacoemulsification Cataract Surgery, Investigative Ophthalmology and Visual Science, 2003; and others.

[ii] Seymour et. Al, "Virtual Reality Training Improves Operating Room Performance: Results of a Randomized, Double-Blinded Study", Annals of Surgery, October 2002, showing that gallbladder dissection was 29% faster for residents who underwent haptically-enabled training on component tasks involved in the surgery.

[iii] Case Western Reserve University (Cleveland), University of Cincinnati, Northeastern Ohio Universities College of Medicine (Akron), University of Toledo Medical Center, Ohio University (Athens), Wright State University (Dayton) and The Ohio State University (Columbus).