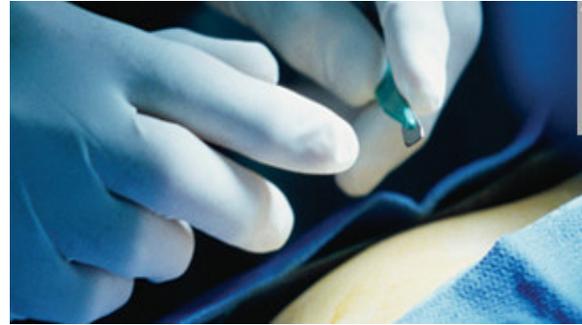




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Interactive Surgical Simulation

A highly interactive surgical simulation model developed at IST allows military medics to train for various trauma and medical emergencies that occur in the field. The project supports Army's Medical Simulation Technology initiative aimed at the development of technology for use in military medical training. This model realistically connects surgical simulation into the HPS/ CTPS environment.

The main scenarios developed include amputation of leg caused by a mine blast; injury to the femoral artery with severe bleeding; lacerated wound of the arm accompanied by severe bleeding. The physical models that were developed for these scenarios are blended with the HPS environment by special software patches that help to reflect the physiological changes appropriate for the scenarios.

These trauma situations are overlaid on simulated standardized soldier on the HPS. Each simulated scenario portrays the anatomical features and the physiological changes appropriate for the situation and allows a medic to intervene and stabilize the

patient by controlling bleeding, monitoring vital signs, correcting hypovolemia. It also supports realistic suturing of the wound in layers and achieves hemostasis. The suturing model developed is interactive with the simulated patient and allows realistic suturing along with a capability for realistic bleeding. The trainee will have the opportunity to monitor the vital signs at every step of the simulation. A special pump that blends with the patient simulator achieves realistic arterial bleeding.

The main goal of the project is to develop simulated life threatening trauma scenarios as seen in the battlefield and train the medics on life saving procedures in the field. This will also contribute to the creation of simulated surgical training centers, which will recreate conditions encountered in the battlefield and emergency medical facilities.

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Mission: ■ Be a focal point for the expanding modeling and simulation community ■ Develop and conduct M&S research and related services ■ Identify M&S directions and trends ■ Facilitate moving M&S into new areas ■ Be a research and development access point to industry for technology transfer ■ Create and participate in partnerships ■ Provide an environment conducive for student and faculty participation in M&S research and development ■ Provide continuing education services.