



Virtual Soldier Research
THE UNIVERSITY OF IOWA

VSR conducts basic and applied research in **digital human modeling and simulation**, particularly focusing on

Why? In the engineering world, analysis of digital prototypes can be performed in terms of stress, dynamics, fluids, aerodynamics, vibrations and many other issues. However, when it comes to human factors, the product (a tank for example), must be prototyped with significant associated costs. The concept of a virtual soldier is to enable testing before making the first physical prototype.

<http://www.digital-humans.org>

The work and fundamental expertise in the VSR are as a result of 10 years of research in the robotics field. VSR is currently funded by the US Army towards work on human modeling and simulation.



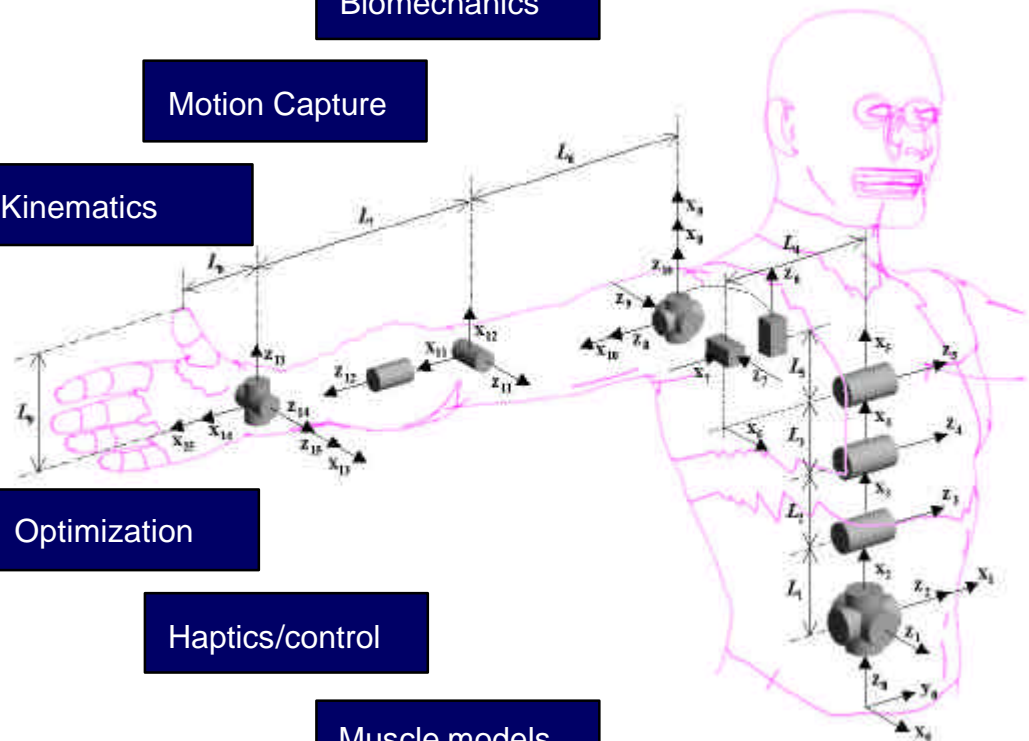
Digital Humans

- Static Posture Prediction
- Point to Point Motion prediction
- Clothing modeling for NBC
- Artificial Intelligence
- Task based execution
- Optimization-based kinematics
- Kinematics/Dynamics
- Human performance measures

Biomechanics

Motion Capture

Kinematics



Optimization

Haptics/control

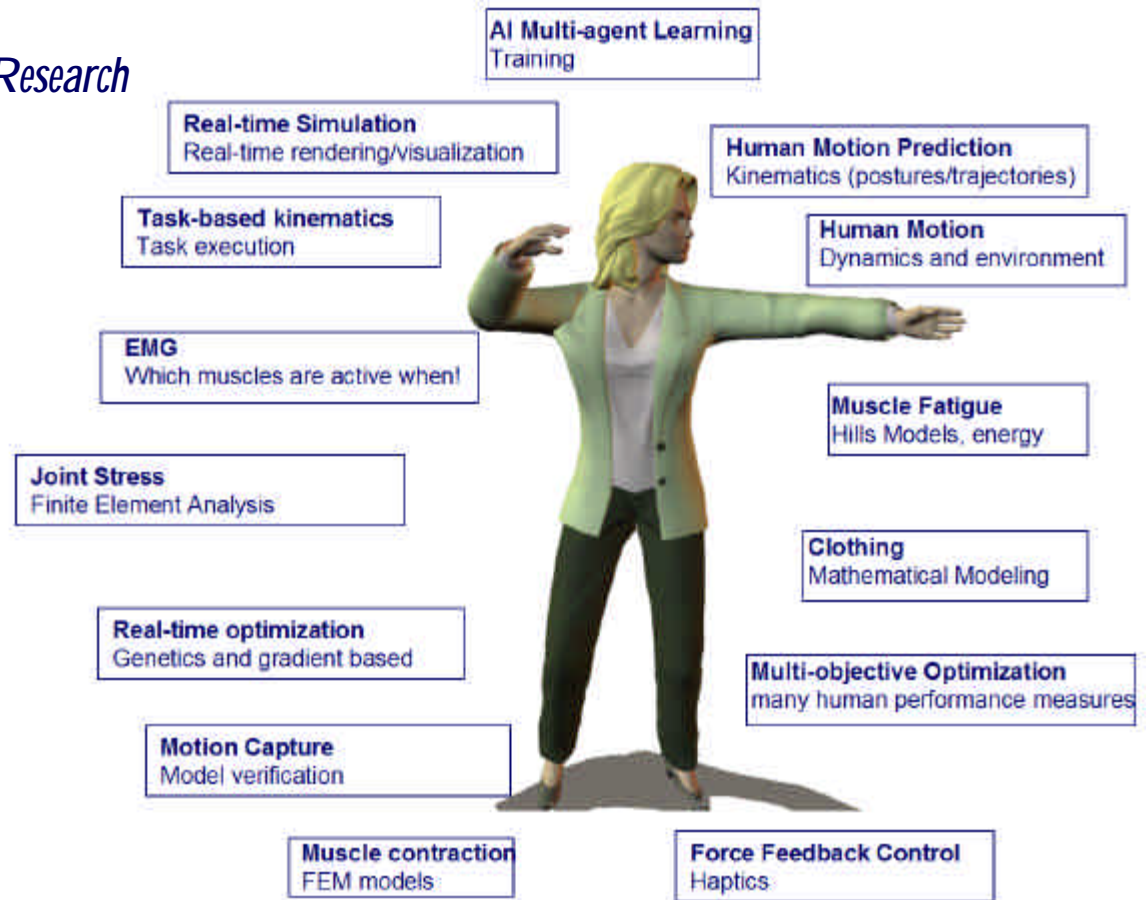
Muscle models

Facilities

The Digital Humans Laboratory
The Virtual Reality Laboratory
The Optimal Design Laboratory
The Artificial Intelligence laboratory
The Computational Mechanics Laboratory
The Biomechanics and Ergonomics Facility



Research



Contacts

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<http://www.digital-humans.org>

Team

VSR encompasses 9 faculty members, 3 post-doctoral associates, 13 graduate students, 4 staff members, and 4 undergraduate students. VSR's objectives are to create virtual environments where digital humans live, and where designers can test and evaluate various products, vehicles, and weapons, before they are made.

Our theorems and postulates for predicting human motion and human response, in terms of kinematics, artificial intelligence, and clothing, are based on rigorous mathematical formulations which yield natural behavior.

