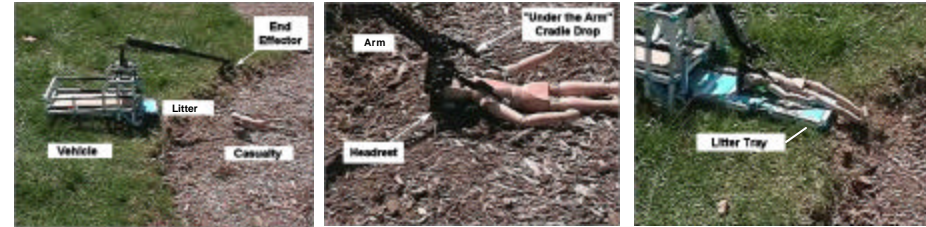
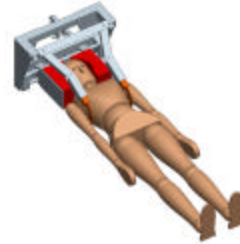




Motivation: Robotically extract casualties thus keeping medics out of harm's way

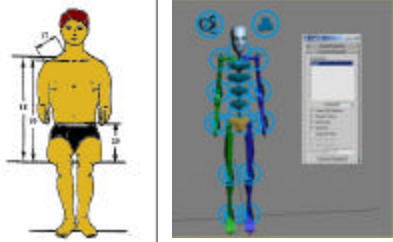


Approach: Design mechanism that mimics “under-the-arm” drag



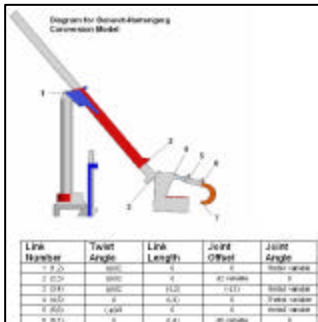
1:6 Scale Proof-of-Concept Demonstrator: Picking up Casualty

Challenges: Defining Technical Requirements



95th Percentile: 350 lbs

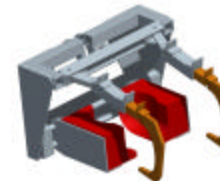
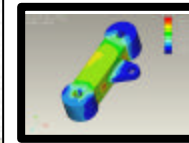
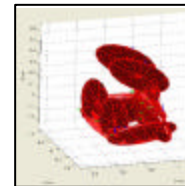
- Less than 7% are spinal injuries
- Terrain Characterization (friction)
- Solder Weight with Gear
- Field Manual: Underarm drag
- Modeling and Assessment
- Symbolic Packages SimMechanics
- Rag Doll Physics Based Simulation
- Stress Testing (Strain Gage)
- ANYSYS and ProMECHANICA



Successes To Date: Proof-of-Concept Demonstrated



- 1:6 Scale Fully Articulated Model
- CAD Drawings and \$11K BOM
- Dynamic Model
- Physics-driven Simulation
- Industry Partners and MOU
- Army and EMT Roundtable
- ANSYS and ProMECHANICA



Future Work: ATV Retrofit