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Terminator meets modern soldiers

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The photo in the Berkeley press release made me think of the Terminator. But this photo of a man with legs encased in a metal frame actually accompanied an article about a new robotics project designed to help a soldier carry a much heavier load than normal.

While the hardware and hydraulics might look like part of Arnold Schwarzenegger's costume, the Berkeley Lower Extremity Exoskeleton (BLEEX), funded by the Defense Advanced Research Projects Agency (DARPA), is being touted as a tool to allow soldiers to walk farther carrying heavier loads, to help medics carry the wounded off battlefields, to help firefighters carry heavy equipment up stairs, or even to help those with weakened muscles to walk.

The whole contraption is attached to an army boot, the person's body and a vest-and-backpack type assembly. It allows the wearer to walk around carrying heavy loads with the same effort as carrying a five-pound pack. The device just moves with the wearer and requires no special training to operate.

The BLEEX project offers a tantalizing solution to situations in which heavy equipment is needed but vehicles cannot travel. Man has traditionally solved this problem by putting pack animals to work to haul things or inventing maneuverable tools like the wheelbarrow. With this invention, the person becomes his or her own wheelbarrow.

The exoskeleton is a project of the University of California at Berkeley's Robotics and Human Engineering Laboratory program and DARPA is the military's research and experimentation wing. DARPA is the organization that really invented the Internet, although it was university academics who brought it to a useful state, but DARPA is also the organization that brought us Carnivore and the Total Information Awareness project. DARPA's role is to fund research in the unusual.

This project has been running since 2000 and has now reached the point at which a person, which the project calls a pilot, can carry a 70-pound load with great maneuverability. "We've designed this system to be ergonomic, highly maneuverable and technically robust so the wearer can walk, squat, bend and swing from side to side without noticeable reductions in agility. The human pilot can also step over and under obstructions while carrying equipment and supplies," said Homayoon Kazerooni, professor of mechanical engineering and director of UC-Berkeley's Robotics and Human Engineering Laboratory. The project's scientists plan to work on adapting the system so the wearer can also run and jump while using the system.

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