Professor Hugh Herr

Engineer, Biophysicist, 'Leader of the Bionic Age' & Keynote Speaker

Professor Hugh Herr is an internationally renowned, multi awarded engineer and biophysicist who designs technology that overcomes disability by emulating the function of natural limbs. In 2011, TIME magazine coined him the "Leader of the Bionic Age" because of his revolutionary work in the emerging field of biomechatronics - technology that marries human physiology with electromechanics.

Hugh is also a powerful keynote speaker who is able to reach the hearts and minds of his audiences. Indeed, his TED talk ended with a standing ovation and was viewed nearly seven million times.

More about Hugh Herr:

Hugh Herr heads the Biomechatronics group and is a professor of media arts and science at the MIT Media Lab. He is also the co-director of the MIT Centre for Extreme Bionics.

A double amputee due to a climbing incident more than 30 years ago, Herr is responsible for breakthrough advances in bionic limbs that provide greater mobility and new hope to those with physical disabilities.

Herr is the author and co-author of more than 150 peer-reviewed papers and patents, chronicling the science and technology behind his many innovations spanning the scientific fields of biomechanics and biological motion control, as well as the technological innovations of human rehabilitation and augmentation technologies. As published in the Journal of NeuroEngineering and Rehabilitation in 2014, Herr's team advanced the first autonomous exoskeleton to reduce the metabolic cost of human walking, a goal that has eluded scientists for over a century.

Herr's Biomechatronics group has developed gait-adaptive knee prostheses for transfemoral amputees and variable impedance ankle-foot orthoses for patients suffering from drop foot, a gait pathology caused by stroke, cerebral palsy, and multiple sclerosis. He has also designed his own bionic limbs, the world's first bionic lower leg called the BiOM Ankle System. As published in the 2012 Proceedings of the Royal Society, the BiOM Ankle System has been clinically shown to be the first leg prosthesis to achieve biomechanical and physiological normalisation, allowing people with a leg amputation to walk with normal levels of speed and metabolism as if their legs were biological once again.

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Herr has received many accolades for his groundbreaking innovations, including the 13th Annual Heinz Award for Technology, the Economy and Employment; the Prince Salman Award for Disability Research; the Smithsonian American Ingenuity Award in Technology; the 14th Innovator of the Year Award; the 41st Inventor of the Year Award; and the 2016 Princess of Asturias Award for Technical & Scientific Research.

Herr's story has been told in a National Geographic film, Ascent: The Story of Hugh Herr. He has also been featured on CNN and other broadcasters and in publications including The Economist, Discover, and Nature.

Herr Hugh speaks about:

Society is at the threshold of a new age when machines will no longer be separate, lifeless mechanisms, but will instead be intimate extensions of the human body. Such a merging of body and machine will not only improve the quality of life for disabled people, but will allow persons with normal physiologies to experience augmented capabilities - cognitively, emotionally and physically. There soon will be a world where technology will merge with our bodies to forever change our concept of human capability. Hugh Herr features research work from MIT's Center for Extreme Bionics that is blurring the distinction between "able-bodied" and "disabled," demonstrating technologies at the neural-digital interface. These new research initiatives are capable of addressing a plethora of conditions currently at clinical impasses, from optogenetic approaches to treat blindness to the development of smart prostheses that can emulate - and even exceed the capabilities of biological limbs. Herr believes that through an ever-increasing technological sophistication, human disability will largely be eliminated in the21st century, setting the stage for innovations that will ultimately benefit all humanity.

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