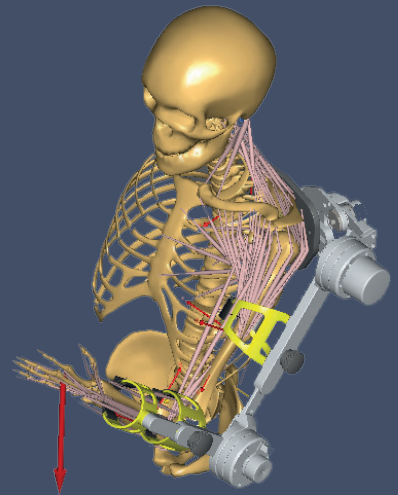


Wearable Exoskeleton Modeling using the AnyBody Modeling System™

Exoskeletons are designed to assist and enhance human abilities. They provide a physical boost, protect the person wearing it in some way, or support the weight of a body part or an object that the user would otherwise carry.

A profound understanding of the interaction between the musculoskeletal system and the design of the exoskeleton is needed to achieve maximum effect and minimal discomfort.

The AnyBody Modeling System offers a cost-effective approach to predict and evaluate the important functionality of exoskeletons, e.g. maximum actuator force and precise alignment of exoskeleton joint locations with the anatomy of the user.



*Prototype for assistive device for elderly persons
(Thanks to the AxoSuit project www.axo-suit.eu and
Shaoping Bai, Aalborg University)*

OPTIMIZED DESIGN OF EXOSKELETONS

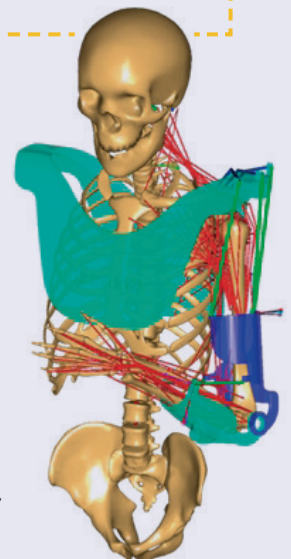
Optimized design of exoskeletons targeting either individual users or groups of users with different body anthropometries or capabilities.

Benefits

- Virtual prototyping
- Explore design ideas
- Study effects on the user to changes in topology, weight, dimensions and actuator power
- Balance pros and cons of a particular design
- Verify hypothesized benefits of prototypes
- Quantify performance benefits
- Highlight risk factors

The AnyBody Modeling System™ for exoskeleton simulation

- Analyses of daily tasks with or without an exoskeleton
- Alignment of body and exoskeleton joints
- Muscle metabolic power and energy
- Muscle activation levels and patterns
- Muscle forces
- Joint reaction forces and moments
- Interaction forces between the body and the exoskeleton
- Dynamic variables of the exoskeleton such as joint torque and power



*Passive exoskeleton for
brachial plexus injury patients*

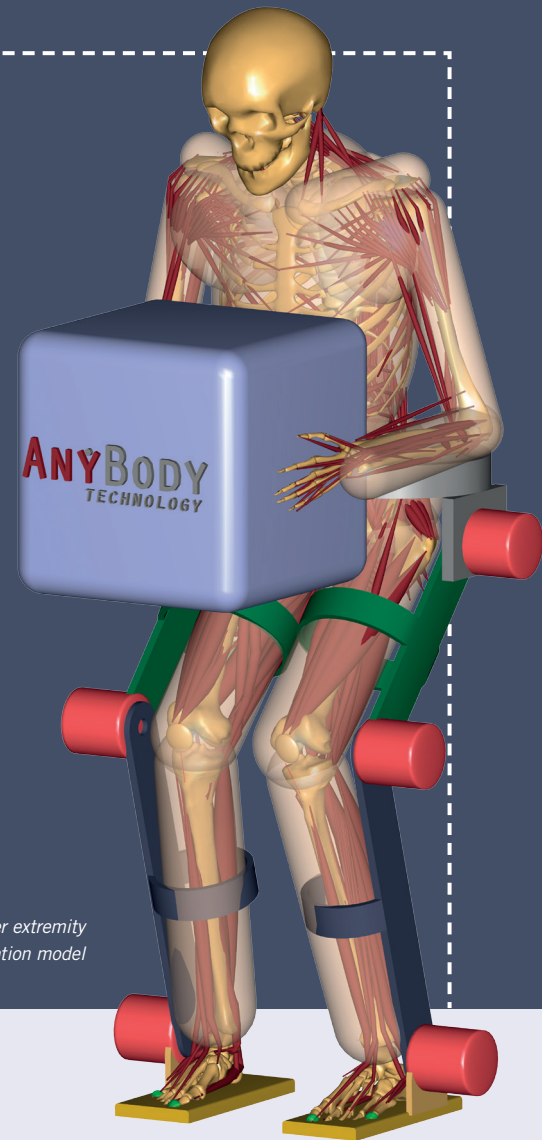
*(Thanks to Shaoping Bai,
Aalborg University. For details
see Zhou et al. 2015, Modeling,
Identification and Control 36,
167-77, ISSN 1890-1328)*

Features of the AnyBody Modeling System™

- Powerful multibody solver with a graphical user interface for interactive use
- Inverse dynamics extended with options for what-if predictions
- Self-contained and robust
- Open and closed kinematic loops
- Batch processing
- Functions for quickly setting model posture and animations ad-hoc
- Support for easy detailed data from C3D, BVH, and other file formats

Features of the AnyBody Managed Model Repository™

- Open body model library
- Detailed model with anatomical fidelity
- Ready for use template models
- Body size scaling (anthropometries or individual subjects)
- CAD model import
- Broad and deep validation

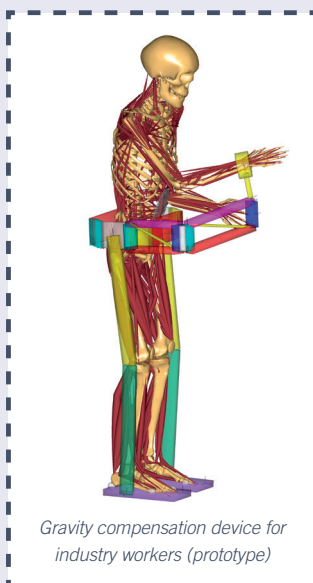


Prototype for lower extremity demonstration model

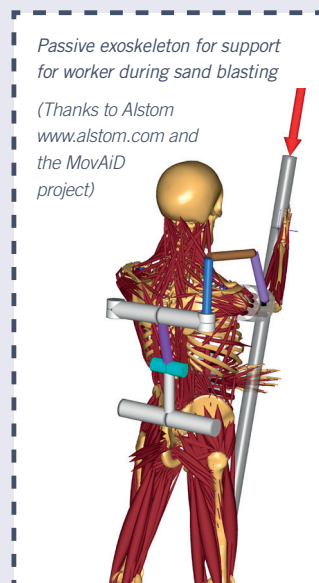


Actuated ankle exoskeleton for use during space flight

(Thanks to the European Space Agency www.esa.int (Contract 4000112181/14/NL/RA), Space Applications Services www.spaceapplications.com, and DLR/ German Aerospace Center www.dlr.de)



Gravity compensation device for industry workers (prototype)



Passive exoskeleton for support for worker during sand blasting

(Thanks to Alstom www.alstom.com and the MovAiD project)

Full-range of exoskeleton devices covered

- Passive and powered
- Stationary and mobile
- Augmentation and rehabilitation
- Lower body
- Upper body
- Full body
- Power suits
- Chair-less chairs
- Power gloves
- Back support
- Tool holding
- And more....

Contact us now at sales@anybodytech.com