



EXOSKELETON REPORT

VOL 1

**OCTOBER 20, 2023
ISSUE NO 6**



UPLIFT

**MUWASHI LAUNCHES
ERGONOMIC SOLUTION
FOR CONSTRUCTION
WORKERS**

EXO TUNING

**ADJUSTING PARAMETERS
FOR SMOOTHER
ADOPTION**

SEE YOU AT

WearRAcon
EUROPE

25-26 OCTOBER 2023

DURING A+4 

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CONTENTS

NO.4

PAGE 3

LAUNCH OF UPLIFT

The UPLIFT is one of the first modular exoskeletons released in years. It can be assembled in four configurations for back-support only, back and legs, back and arms, or all combined.

PAGE 4

EXOSKELETON TUNING

On the path to intuitively tuning powered exoskeleton using only yes and no responses from the user.

PAGE 6

HEADLINE NEWS

Shorter summaries of important events relevant to the exoskeleton industry.

PAGE 8

ABOUT US

Contact information and acknowledgements.

 Cover Image: UPLIFT™ exoskeleton © Mawashi Science and Technology

 Header Image (above): WearRAcon Europe at A+A Banner Ad



OPTION 1

Back Module



OPTION 2

Back Module

+

Leg Module



OPTION 3

Back Module

+

Arm Module



OPTION 4

Back Module

+

Arm Module

+

Leg Module

📷 Photos: courtesy of Mawashi Science & Technology

Official Launch of the UPLIFT™

The Canadian producer Mawashi Science & Technology has officially launched the UPLIFT™ exoskeleton. The UPLIFT is a modular, passive (elastic) occupation exoskeleton. Its primary goal is to mitigate the risk of musculoskeletal injuries and disorders among workers in various fields such as masonry, construction, handling, manufacturing, and similar occupations.



An earlier prototype was shown to ExR half a year ago. Our first impression is that this wearable is robustly designed to withstand significant wear and tear. Essential components, from the knee joint to the shoulder pads, felt sturdy and durable. This robustness is crucial because industrial environments are notoriously harsh on equipment, and wearables are no exception. Mawashi leverages years of experience in the defense sector, applying their expertise to their occupational exoskeleton offering.

In a market where many strive to minimize the size and footprint of occupational exoskeletons, Mawashi has boldly chosen to produce a larger device with the UPLIFT. Only time will tell if this innovative approach proves popular with workers.

MORE INFO

<https://uplift.mawashi.ca/en/our-exoskeleton/>

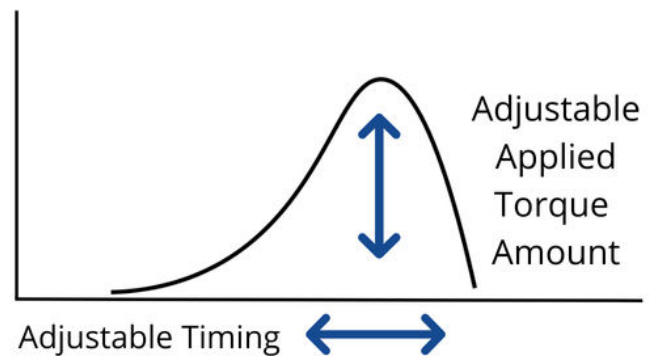
Allowing Users to Select Intuitively their Powered Exoskeleton Settings

A couple of years ago, the University of Michigan answered that if users could customize their powered exoskeletons' torque and timing settings, they would. Not only would unique users have unique preferences, but they would be able to find and manually tune them repeatedly. Kim Ingraham presented this initial work in a talk at Dynamic Walking 2020. The team included the University of Michigan, Ann Arbor, Robotics Institute, and Institute for Nonlinear Mechanics, University of Stuttgart. The full experimental results were published in “The role of user preference in the customized control of robotic exoskeletons.” The talk is still online and represents the work by Kim Ingraham, David Remy, and Elliott Rouse (see [Letting Exoskeleton Users Choose Their Own Settings, Dynamic Walking 2020](#)).

Fast forward to 2023, and the researchers are answering a follow-up question: Could powered exoskeleton users derive their ideal settings using only Yes and No questions?

In the new study, a combination of an algorithm and forced yes/no responses demonstrated that the users could “tune” the motors to a powered knee exoskeleton repeatedly almost 9 out of 10 times to their same preferred settings.

The study is published in Science Robotics: “User preference optimization for control of ankle exoskeletons using sample efficient active learning” ([link](#))



Why is this study critical?

This is not the first time a powered exoskeleton or a robotic device has allowed users to access specific torque amplitudes, acceleration, deceleration, or peak value parameters. However, this study shows that users can reach the same level of fine-tuning without any knowledge or understanding of robotics or precision motion control.

This is promising news for powered exoskeleton producers such as ExoIQ, German Bionic, ExoAtlet, Japet, among others. This fundamental research is the next page towards mastering the adoption of robotic exoskeletons.



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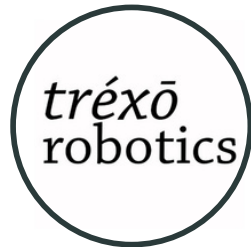
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Trexo Robotics, renowned for its pediatric gait training system popular among parents of children with cerebral palsy and other neuro disabilities, has announced that it will increase its prices starting January 2024. The purchase in full of a small or medium home unit will jump by as much as 29%.

There is no insurance coverage for these devices, but those considering purchasing a unit can lock in the original price by signing and paying their first invoice before December 22, 2023.



SiliconRepublic has published a story on successfully using a gait-assist powered exoskeleton at Dublin City University (DCU). DCU to help people with paralysis to walk while improving research in the fields of robotics and neurorehabilitation. Reportedly, DCU's Exoskeleton Program is a physiotherapist-led service that uses wearable robotics technology to support people with reduced walking mobility.

The article states that a single device delivers between 500 and 800 walking sessions yearly, or between 2 to 3 sessions per workday, not counting holidays. Furthermore, DCU plans to purchase a second device to expand its offering and a third unit specifically for pediatric use.

This is a rare insight into the successful use and implementation of physical rehabilitation exoskeletons in a clinical setting.

Link to full article: [SiliconRepublic.com](https://www.siliconrepublic.com)



[An older video highlighting the work of the DCU using a suit by Ekso Bionics](#)

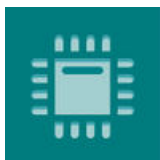
Inflatable Exosuits Comfortable to Use for Fingers Extention

Researchers Gregory Jackson and Hussein Abdullah from the University of Guelph, Canada, have penned an open-access study on the comfort and safety of inflatable powered exoskeletons. The study involved 30 healthy individuals using a custom-made pneumatic exo-glove.

Studies like this are instrumental in driving adoption and/or identifying shortcomings.



[link](#)



sensors

EVENTS CALENDAR



OCT 23 All day
ErgoX 2023



OCT 24 October 24 - October 25
WearRAcon Europe 2023



NOV 8 November 8 - November 10
National Ergo Conference
\$1,395



NOV 20 November 20 - November 22
IBERDISCAP 2023 Conference
245€



APR 10 April 10, 2024 - April 12, 2024
10 13th Meeting of Committee F48 on Exoskeletons
Free



APR 16 April 16, 2024 - April 17, 2024
16 ExoBerlin 2024



DEC 9 December 9, 2024 - December 12, 2024
9 14th Meeting of Committee F48 on Exoskeletons
Free



Find out more about these upcoming events at the ExoskeletonReport.com Events Calendar.

If you know of any upcoming exo-focused events that are not listed above, let us know by sending an email to:

hello@ExoskeletonReport.com



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The Exoskeleton Report (ExR) e-magazine is written and produced by Borislav “Bobby” Marinov and the Exoskeleton Report.

The material was prepared with the aid and assistance of Daniel Walker, Gus Vogel, and Inna Marinova.

As always, I am grateful to Tri Dao, who continues to be the central pillar behind ExR. Visit us at ExoskeletonReport.com

Reach out:

We welcome all feedback, comments, suggestions, news submissions, or inquiries regarding advertising or consulting! Contact us using our email:

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- Hello@ExoskeletonReport.com

Or by utilizing our contact form at:

- <https://exoskeletonreport.com/contact-us/>

📷 **Above:** About Us... by Rolling Camera via Getty Images