

Entrevistamos a Jawad Masood, experto en robótica y exoesqueletos, de reconocido prestigio internacional



Jawad Masood, doctor ingeniero en robótica y experto en exoesqueletos con reconocido prestigio internacional. Ha trabajado como investigador en diversos centros tecnológicos de Italia, Suecia y Estados Unidos. Ahora trabaja en CTAG y lidera varios proyectos europeos sobre el testaje y adaptación industrial de los exoesqueletos.

Además, colabora junto a nuestro Laboratorio de Ergonomía, en proyectos de implementación de exos en PSA y es chairman del próximo Congreso sobre exoesqueletos que se celebrará en octubre.

Sobre Jawad Masood

Sobre la actualidad de los exoesqueletos



Could you begin by telling us a little about yourself and your role at CTAG?

I am a passionate wearable robotics technologist who belongs to a

multicultural and diverse background, I have the privilege of working in three continents and the author of more than 20 international publications and patents. I started the role of Team Leader at CTAG in 2016 and since then I have been trying to find solutions to help the industrial workers to improve their job quality by testing different wearable technology solutions.

In regards to the advancement of this technology, describe the situation in Spain compared to other

I think the situation in Spain on technology exploitation is good. However, it is not up to the mark as compared to other countries. We need to invest in new innovation in exoskeleton and exosuit technologies.

In your opinion, what factors, facts or opinions hinder the development and integration of these devices? What would you introduce an exoskeleton in a company?

Lack of legislation to use these devices at EU stage as well as on local standards and best practices are missing who can define the safety requirements.

EU is heading towards the legislation as well as the standardization initiative. I definitely improve the technology implementation and will serve as the trigger for the industry.

Sobre tu visión del futuro
Ha trabajado como investigador en diversos centros tecnológicos de los Estados Unidos. Ahora trabaja en CTAG y lidera varios proyectos europeos de adaptación industrial de los exoesqueletos.

What do you see as the next evolution of industrial technology? How do you image this technology in the future?
I foresee exoskeleton technology will eventually integrate in our industrial gloves as modules. These modules will help the workers to improve their job intelligent forecasts to optimize his health vs job.

What for you are the changes you would like most if you had a magic wand to solve one technical problem that you, what would that be?

I fantasize the zero weight energy source that can help to energize the mechanical weight to the structure.

Which would be your dreamed project to work?

I would like to work on the development of smart clothing that can work in a more efficient way and complete the task.

Sobre WeRob2020 y la colaboración con Mutua Universal

How and where did you get involved in exoskeletons in the first place? What attracted you to this field?

I started my journey in this area at Italian Institute of Technology as Senior PostDoctoral Researcher where I was involved in the exciting project called RoboMate. Under the supervision of an excellent Leader Jesus Ortiz and Darwin Caldwell. My work involves the development of Parallel Elastic Actuator for an active exoskeleton that was designed to help industrial workers. Human in the Loop robotics [part of robotics that works with loops with commands] always attracts me because I believe robots as the helper of mankind not the replacement.

What is WeRob2020? How does it come about?

WeRob is the International Symposium on Wearable Robotics. It regularly researchers and stakeholders in wearable technologies. It is chaired by professor Jose Pons. In 2018 WeRob, I and Jose discussed the possibilities of Vigo after my presentation of testing protocol which was developed in collaboration with CTAG and management at CTAG idea to host the conference. In 2019 we formally accepted to host the WeRob CSIC.

And, what is WearRAcon? What extra advantages WeRob?

WearRAcon is an emerging wearable robotics conference which has two parallel events in Europe. It is heavily focussed on the commercial aspects of wearable technologies. It has attracted important stakeholders from the world. From 2020 WeRob and WearRAcon have reached a consensus to cooperate in hosting the events together. With inclusion of WearRAcon we can address the right blend of research and commercial questions and attract talent to benefit from all aspects of the technology.

To finish with, knowing our line of work in this issue, what is our mission as a Mutua, which suggestions or guidance can we offer you?

I think Mutua is working great in this area already. First of all, I suggest continuing to provide information and motivation to improve the worker job quality. In addition, Mutua can investigate how using Exoskeletons can benefit the companies in terms of saving injury costs. In other countries where companies like Mutua can sponsor exoskeleton research and development, they can invest and see how this technology can benefit the companies [associated with the sector]. These models/studies must be scientifically proven via research and development.

Brilliant, amazing! Thanks for the interview Jawad

Lee la entrevista en castellano

[/sites/trabajo_saludable/es/publicaciones/202033/.content/documentos/Jawad-Mas](https://www.mutuauniversal.es/sites/trabajo_saludable/es/publicaciones/202033/.content/documentos/Jawad-Mas)

What projects are you currently working on?

On European level, I am currently working on a TestEd and Co-Guiding project which are Horizon 2020 projects funded under Eurobench [first european framework for the application of a benchmarking methodology for robotic systems] and COVR [macroproject whose objective is to improve the security of cobots -collaborative robots-]. On Global level, I am contributing to the Get2Excel [center of the research, benchmarking and standardization for exoskeleton technology that coordinates the contributions of different clusters from Europe, Asia, the Pacific area and America], Cost Action 16116 [scientific cooperation network

to connect research
and innovation efforts
on wearable robots
to augment, assist or
substitute human
motor functions] and
ASTM F48
[committee to
develop voluntary
consensus standards
for exoskeletons and
exosuits - robotic
clothing-]. On Local
level, I am involved in
the technology
support and
consulting of various
industrial sectors in
Galicia ranging from
manufacturing,
logistic, construction
and agri-food. I have
the honor to work
with great clients
such as Groupe
PSA, Navantia,
Gamelsa, Faurecia
and the list goes on.

What is the greatest challenge you face today?

The greatest challenge I face today in the area of Exoskeleton development is the adoption of the technology for the longer term. It is related to many complex sub issues such as absence of legislation at EU level as well as at local level, lack of standardization, no benchmarking [a method that allows companies to compare the characteristics and performance of existing products on the market] and shortage of scientific evidence that exoskeleton can reduce MSD for long term usage.

Sobre los exoesqueletos

In what ways do you think exoskeletons can be helpful in the companies?

Exoskeletons can serve as the medium of information exchange between the industrial environment and the worker. The exoskeleton can augment the skills of the worker and can help to prevent the Musculoskeletal disorders.

Exoskeletons can be used for training new skills. All these factors can improve to the overall business of the industry and product quality.

At what point
should a
company
consider
introducing an
exoskeleton
for a
workplace?
Why should
they
implement
this measure?

Today, exoskeletons
are considered to be
the easy solution to
the complex
ergonomic problems.
But in reality this is
not the correct
approach. We must
introduce
exoskeletons by
thoroughly studying
the problem in the
first place.

Sometimes a simple
modification of the
workstation or
process can solve
the problem. In other
cases, it is difficult to
modify or change the
workstation/process,
this is the time we
should start thinking
of introducing the
exoskeletons.

What kind of certifications or tests do exoskeletons pass before going on the market? Do they need some kind of validation?

This is a good question and part of debate in the exoskeleton community today. Today, we can find exoskeleton with CE marking that make those exoskeleton to be sold in the EU market. In my opinion, there must be third party validation and certification bodies who enforce the safety and performance requirements on the exoskeleton by implementing benchmarks [references that allow comparing the different products on the market]. In the EU, there are some projects that are focusing on this issue; one of them is called Eurobench.

What is the lifetime of an exoskeleton?

The lifetime of an exoskeleton is measured by the number of duty cycles it completes during operations. Every manufacturer has its own lifetime. So it is very difficult to generalize it.

Are you
aware of
unwanted
effects on
health due to
the use of an
exoskeleton?

No. I am not aware of
any unhealthy effects
that are scientifically
proven. On the other
side, I am also not
aware of the health
effects of using the
exoskeleton for a
long duration of time.
I believe we must
investigate and test
these devices
rigorously for a long
duration of time to
verify and validate
exoskeleton health
benefits or vice
versa.

In your opinion, what business activities are likely to discover the usability and benefits of exoskeletons?

I think all the businesses that involve repetitive manual tasks can benefit from this technology. I think manufacturing, construction and logistics are the few already using this technology. However, healthcare workers and agri-food can get a lot of benefit out of this technology.