

## PROTEOR prostheses will now be adapted to everyday living restrictions

*In addition to facilitating mobility, PROTEOR has teamed up with Carnot ARTS to restore lower limb capacity by reducing restrictions and inconveniences*

### Supporting Innovation

Lower-limb amputees now have access to increasingly light prostheses that are much easier to manipulate and may even be adapted to a particular sporting activity. If walking is possible, certain situations require compensating movements on the part of the prosthesis wearer. PROTEOR wanted to get around replacing a missing limb by a passive prosthesis and it harnessed the research of the Georges Charpak Human Biomechanics Institute (IBHGC) to achieve major progress in movement over uneven or unstable ground or when the body is bent over. This research culminated in the creation of a microprocessor-controlled knee-ankle-foot prosthesis, an innovation that has drawn praise from the DGA, the French Defence Procurement Agency.



### The client needs

The PROTEOR Group has been meeting the needs of physically handicapped people who require prostheses since it was set up in Burgundy in 1913. It does business in fiercely competitive international markets, notably in Europe, but its "human-first" strategy based on a customised offering has turned it into a key market player. PROTEOR is in constant contact with patients and invests in R&D to deliver reliable and accessible solutions to both individuals and professional customers. This constant quest for improvement highlighted the potential benefits of the close study of prosthesis-wearer walking patterns during an initial partnership with IBHGC and this first phase was rounded out by digital solutions for prosthetic components. PROTEOR and Carnot ARTS have been innovating since 2010 in the whole area of complex movement scenarios. To bolster its position, particularly with major institutional contractors, PROTEOR has renewed its partnership, showcasing the mutual contributions of both organisations.

### Partnership

IBHGC is a cross-disciplinary research unit providing expertise in human biomechanics within Carnot ARTS. It is tasked with studying all situations involving injuries or malfunctions, together with the means of preventing, diagnosing and dealing with these situations.

Successive CIFRE PhD agreements have played a big role in developing the modelling base and studying the effects of prosthetics materials on movement by combining an experimental approach with digital modelling.

This cooperation has been in progress since the early 2000s and has enabled Proteor to benefit from cutting-edge research within a relationship based on mutual trust and exchange. The diversity of patient case studies, their evolution over time and the durability of ties with PROTEOR have facilitated the deployment of embedded technologies in a product that has been awarded a prize by the French Ministry of Defence.

PROTEOR continues to focus on customisation and research into adapting to everyday living restrictions and the quality of the fit in order to secure its future development.