

## TETRA project proposal 2018

### Op3Mech

Computer-aided design and engineering

- Mechanical and biomechanical virtual modeling
- Motion analysis

Optimization of mechanical and numerical models

- Finite element updating

Vibration and thermographic measurements

- Infrared thermography, heat transfer analysis, NDT inspection

3D-measurement techniques

- Combined camera techniques, measurement and analysis
- Smart data cloud processing
- Industrial vision systems

### Product Development

Research in Product Development aims at improving health and wellbeing of all people through:

- Integration of recent human, technological and economic scientific insights.
- Development of problem solving design processes and techniques.
- Development of scientifically validated verification techniques in product design processes.
  
- Industrial affinity of the research group.
- Promotion of agile work environments and respect.

## SWEATT: Sensing of Well-being, Ergonomics and Activity using Thermography and Thermal manikins



#### Contact information

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## Who we are

We are consortium of two research groups of the University of Antwerp: Op3Mech and Product Development. We can offer a unique platform in which complementary expertise on 3D static as well as dynamic (4D) thermal data acquisition and modelling of the human body is combined such that various problems you are facing can be solved.

## Target group

- Flemish SME's (KMO's)
- Medical personnel (e.g. Surgeons, researchers, ...)
- Product developers
- Retail in shop as well as online
- Sports
- ...

## Why should you participate?

You are granted exclusive access to all results during the project and you have the opportunity to steer the project, provide use-cases to optimize your products or workflow, participate in project meetings, etc.

- Privileged and early access to new developments
- To develop new products and applications through collaboration with project partners
- Appropriate data acquisition depending on the industrial problem to be resolved
- knowledge on the use of 3D and 4D thermal human body data for innovations and competitive advantages
- State-of-the-art data processing algorithms translated into accessible tools to interpret and deploy thermal human body data in the design process.
- Product and process innovation through improved fit, comfort, and function of body worn products based on digital human body models.
- Much more ...

The most important mission of this TETRA-project is sharing knowledge in the field of thermography for ergonomic optimization of products and heat dissipation during physical activity.

## Project goals

- Within SWEATT it is aimed to translate scientific methods with respect to thermal comfort assessment and thermography in an experimental platform, such that academic insights become available for Flemish Industry.
- More specifically, thermal comfort assessment will become available through object (thermal manikins) and subject evaluation (test persons), quantifying the heat loss of the human body.
- Then, thermography will allow gaining insight in the thermal properties of near (sports) clothing, quantifying the heat flow to the environment.
- By quantifying heat loss of the human body and the thermal properties of (sports) clothing products, Flemish Industry is provided with state-of-the-art methods and tools that allows evaluating the performance of their equipment and products. Also, the provided methods will allow guiding sportsmen towards optimal performance within extreme conditions.

