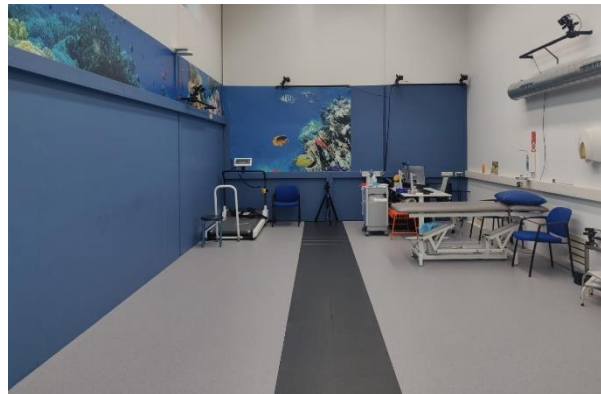


## ISPGR2025 Lab tour at Maastricht University and Maastricht University Medical Center

You are warmly invited to attend the ISPGR local lab tour in Maastricht, just a stone-throw away from the conference center. We have four labs for you to experience, all with relevance to gait and posture research

### 1 Clinical gait lab (Koen Wishaupt)

The Clinical Gait Laboratory at Maastricht University Medical Centre (MUMC+) supports academic healthcare, diagnostics, and research, primarily offering clinicians comprehensive clinical gait analyses. We assess walking abnormalities, motor control, and underlying impairments—key for diagnosis, treatment planning, and progress monitoring. The lab features state-of-the-art technology, including a newly upgraded VICON Vero motion capture system for 3D movement analysis, two embedded force plates for kinetic assessment, and a 16-channel Cometa EMG system to record muscle activity. Four synchronized video cameras provide visual context to complement the quantitative data. Since spring 2025, the lab also uses the Moveshelf platform to digitally document, visualize, and share gait analysis results with clinical teams, enhancing collaboration and care.



### 2 CAREN lab (Chris McCrum, Liset van der Hulst, Meichan Zhu, Tamaya Van Crielkinge)

The CAREN (Computer Assisted Rehabilitation Environment) lab is located in the Maastricht University Medical Centre and is the primary lab of the Maastricht Movement Research Network, a collaboration between scientists and clinicians working on translational issues in human movement and movement related disorders. The CAREN comprises a force plate-instrumented dual belt treadmill held within a 6 degrees of freedom motion base, surrounded by a 180° virtual environment screen. Combined with a Vicon motion capture system and the addition of EMG and indirect calorimetry, it provides the opportunity to assess and train participants in a multitude of realistic environments. In this visit, researchers from Chris McCrum's research group will pitch and demonstrate their research using task-specific approaches to study and train walking in older adults and in people with vestibular disorders.

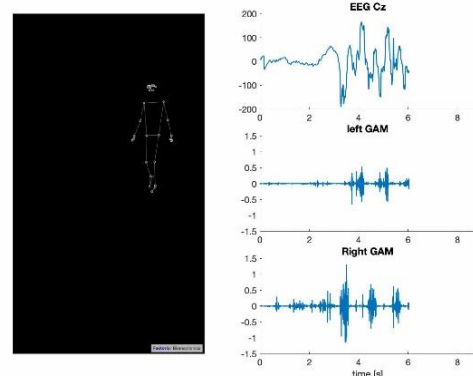


### 3 MOBI lab (Tjeerd Boonstra and Alan Bince Jacob)

The Mobile Brain-Body Imaging (MOBI) lab is a joint initiative between the Faculty of Psychology and Neuroscience and the Department of Human Movement Sciences. It combines 64-channel mobile EEG, 16-channel wireless EMG, and 3D motion tracking to study posture and gait. The lab aims to assess cognitive control in real-life conditions, and how it is affected by aging and movement disorders, by incorporating experimental psychology tasks into movement studies. In the MoBi lab, we will demonstrate mobile EEG acquisition on the Interactive Walkway to explore the neural mechanisms behind gait adaptations.



### MOBI Maastricht



#### **4 Augmented-Reality lab** (Melvyn Roerdink, Daphne Geerse, Eva Hoogendoorn, Pieter van Doorn, Joey Gerritsen)

The Augmented-Reality (AR) lab is part of the movement science lab of the Department of Human Movement Sciences, with three distinct AR setups that were all initiated by local team members: 1) the C-Mill, the world's first AR rehabilitation treadmill (commercialized through DIH/Motek/Hocoma), 2) the Interactive Walkway, an overground projector-based AR setup for research on walking adaptations, and 3) Stroll AR, a platform to assist, treat and assess mobility using state-of-the-art wearable AR glasses (commercialized through Stroll). In the AR lab you will experience the power of AR for modulating movement, assessing fall risk and engaging rehabilitation and (clinical) data science outside the lab.



#### **Focus and learning objectives**

This lab tour will illustrate through interactive lab visit how science, technology and clinical and industrial partnerships drive scientific insight and societal impact. You will learn first-hand about how key technologies are used in this process and on the importance of interactions with academic, clinical and industrial stakeholders.

#### **Program Thursday July 3<sup>rd</sup>, 2PM – 4:30PM + social gathering):**

- 2:00 PM: brief plenary intro to the labs and what to expect from the lab tour (at conference site)
- 2:15 PM: short stroll to the labs
- 2:30-4:30 PM: rotating through the four labs, with demos, science pitches and experiencing the technology firsthand
- 4:30 PM: Stroll back to the conference site and conclude with informal social gathering with drinks and snacks

#### **People involved with contact details**

Koen Wishaupt, MSc., Clinical gait lab operator at the Maastricht University Medical Centre (MUMC+) and lab technician and research associate at the Department of Nutrition and Movement Sciences, Maastricht University, [koen.wishaupt@maastrichtuniversity.nl](mailto:koen.wishaupt@maastrichtuniversity.nl)

Chris McCrum, PhD, Expert in the task-specific assessment and training of fall-resisting skills. Assistant Professor at the Department of Nutrition and Movement Sciences, Maastricht University, [chris.mccrum@maastrichtuniversity.nl](mailto:chris.mccrum@maastrichtuniversity.nl)

Tjeerd Boonstra, PhD, Expert in mobile brain-body imaging of posture and gait. Senior researcher at the Department of Neuropsychology and Psychopharmacology, Maastricht University, [tjeerd.boonstra@maastrichtuniversity.nl](mailto:tjeerd.boonstra@maastrichtuniversity.nl)

Melvyn Roerdink, PhD, Expert in augmented-reality applications for assisting, assessing, promoting and treating movements and academic entrepreneurship, Senior researcher at the Department of Nutrition and Movement Sciences, Maastricht University, [melvyn.roerdink@maastrichtuniversity.nl](mailto:melvyn.roerdink@maastrichtuniversity.nl)

#### **Intended Audience:**

Researchers, clinicians, and companies interested in the interplay between movement science, technology and clinical/industrial partnerships. We are open to science collaborations at all levels, participation in (clinical) research consortia, and extending our industrial-partnership portfolio.

#### **Social Activity:**

An informal reception (drinks and small bites included) will take place at the end of the tour.

#### **Fee:**

Free, but registration is mandatory