

INTERNSHIP/FINAL THESIS – MotionVibe: Enhancing running performance through wearable technology

Running, despite its numerous health benefits, poses a significant challenge due to high injury rates. In the Netherlands alone, runners reported 660,000 injuries in 2022, constituting 13% of all sports-related injuries. This project aims to address this issue by developing a smart garment integrated with motion capture technology and personalized haptic feedback. The collaboration between Movella's motion capture technology and Saxion's expertise in e-textiles and user-centered design aims to create a prototype that not only enhances running performance but also reduces the risk of injuries through effective feedback mechanisms. We are currently seeking passionate and innovative students to join our team.



Fig. 1 Designed, created and courtesy of Melissa van Schaik and Cornel Doornebosch.

POSITION 1: RUNNING PATTERN ANALYST (SENSING)

In collaboration with Movella, you will be tasked with analyzing running patterns using Inertial Measurement Units (IMUs) and translating these patterns into valuable data for haptic feedback. Your responsibilities will include conducting interviews with runners to gain insights into their challenges and opportunities, as well as analyzing running patterns through user tests.

POSITION 2: HAPTIC STIMULATION (ACTUATING)

In this role, you will work on creating meaningful haptic patterns to guide runners, collaborating closely with interaction design and haptics researchers. Your tasks will involve conducting interviews, developing haptic patterns, and following an iterative design process to ensure their effectiveness and usability.

PRACTICAL INFORMATION

- **Student profile:** Both tasks require collaboration with experts in fashion technology, smart textiles, human movement science and user-centered design. We are looking for a student that can connect different fields of expertise, who is hands on in his/her approach. You will mainly work independently, but you are pro-active in including relevant partners in your research.
- This opportunity may involve an internship or a graduation assignment.
- By contributing to the development of this smart garment, you will be at the forefront of innovation in sports and health technology, potentially impacting the running experience for athletes and enthusiasts alike. If you are passionate about pushing the boundaries of wearable technology and creating tangible solutions to improve performance and comfort, we invite you to join us!
- **Contact person(s) for this assignment:** Melissa van Schaik / m.e.vanschaik@saxion.nl +31616007678
- **Research group Sustainable and Functional Textiles:** saxion.nl/sft