

Dr. Joe Handsaker

Science and Innovation Expert with a Background in Sports Science and Biomechanics

Education

Post-Doc. Study in Sports Biomechanics – Loughborough University
PhD. in Clinical Biomechanics – Manchester Metropolitan University
MSc. in Sports Biomechanics – Liverpool John Moores University
BSc. (Hons) in Sports and Exercise Sciences – University of Chester

Roles

CEO and Founder @ Elements Technology (2018 – 2022)

After spotting an opportunity to repurpose consumer technologies into accessible Industry 4.0 products for SME manufacturers, I founded Elements in January 2018, raised £250k investment just nine months later, and brought a product to market in May 2019. We have recently sold our technology suite to Authentise Ltd, giving me the opportunity to explore new opportunities in the world of sport and technology.

Over the past four years I have been involved across the company, with many personal achievements including:

- Raising £500k in private equity investment across two investment rounds
- Writing, winning and leading an Innovate UK project worth £350k
- Winning multiple awards for innovation including the Rolls Royce Innovation Award

Science and Technology Advisor @ MAS Holdings (2015 – 2018)

As an advisor, I worked on projects relating to human movement and human anatomy, primarily advising on how to capture human movement and performance using wearable technologies. I was positioned within the central innovation team, working with the separate spokes within the MAS Holdings umbrella to help develop new tech-based and garment-based solutions for brands such as Nike, Speedo, Lululemon and Puma. My role included:

- Analysing and drafting patents relating to the capture of human movement
- Establishing strategic connections with universities, brands and organisations
- Working with internal and external partners, disseminating good practice for capturing human movement and performance.

Lead Biomechanical Researcher @ Loughborough University (2015)

Lead researcher in the most extensive study ever performed into the biomechanics of long distance running, I performed biomechanical analysis of 100+ elite and recreational runners performing an incremental running test to exhaustion. I liaised between Loughborough University, the funders (MAS) and a startup (Lumo) that were developing a product based on the outputs of the project. My role included:

- Setting up and maintaining a ten-camera motion capture system
- Creating an efficient labelling and analysis process for 240+ biomechanical variables
- Presenting the results in a report for funders, and writing scientific papers for publication

PhD in Clinical Biomechanics @ Manchester Metropolitan University

(2012 – 2014)

The PhD was part of a European-funded project examining the effects of Diabetic Peripheral Neuropathy on mobility and safety in patients with diabetes. The primary metrics assessed were lower-limb rate of joint torque development, lower-limb EMG onset and cessation patterns, and eye gaze saccadic patterns during a variety of mobility tasks including flat-walking and stair-walking.

Biomechanical Research Assistant @ FIFA

(2011)

As part of a collaboration of European universities, I examined the turning profile of elite and semi-elite footballers on artificial and natural turf surfaces, at sites across Europe including the training grounds of Valencia, Ajax and the KNVB. My role included:

- Setting-up and running a mobile six-camera motion capture system
- Capturing and analysing data from 60+ sub-elite footballers
- Compiling results into a report for presentation to the FIFA board.

Patents and Inventions.....

Written and published five patents:

- System and method for monitoring the running technique of a user (US20180279916A1)
- Vehicle monitoring system for capturing vehicle incidents (GB2568053A)
- Process management with location identification (WO2019/145497A)
- Automated process management system (GB2574810A)
- Object location using wireless communication protocols (GB2570479A)

Publications and Presentations

Five publications as lead author, and fifteen publications as listed author in the areas of running biomechanics and diabetic biomechanics. Below are some of the key papers I was involved in:

- Handsaker et al. 2017 (Journal of Biomechanics)
- Folland et al. 2017 (Medicine and Science in Sports Exercise)
- Black et al. 2018 (International Journal of Sports Physiology and Performance)
- Handsaker et al. 2014 (Diabetes Care)
- Handsaker et al. 2015 (Diabetic Medicine)

Presented at six international conferences including:

- International Union of the Physiological Sciences (Birmingham, 2013)
- World Congress of Biomechanics (Boston, 2014)
- International Society for Electrophysiology and Kinesiology (Rome, 2014)

.....

References available upon request