

SBPR Travel Fellowship 14th to 22nd of June 2025

HARNESSING TECHNOLOGY FOR CHIROPRACTIC RESEARCH: INSIGHTS FROM THE SBPR FELLOWSHIP

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Health Sciences University: AECC School of Chiropractic

Overview

This fellowship provided the opportunity for me to represent HSU and visit both Parker University (Image 1) and Houston University (Image 2) to learn from and collaborate with Dr Chris Malaya (Image 2 on the right), a former NASA scientist and Professor Chuck Layne, both experts in motor control and movement analysis technologies. The visit aimed to harness Dr Malaya's extensive experience with the VICON motion capture system and to explore the possible uses of new Myoton digital palpation technology.

The fellowship has also afforded the opportunity to establish a sustained, productive collaboration between the Health Sciences University in Bournemouth and a leading U.S. chiropractic education institution, providing a great foundation for building collective research capacity, enhancing technological expertise, and will hopefully result in innovative investigations into spinal biomechanics and rehabilitation conducted at sites both sides of the Atlantic.

Image 1



Image 2



Rationale

The AECC School of Chiropractic at Health Sciences University (HSU) recently acquired a VICON motion capture system, a powerful platform for studying movement kinematics. However, this technology remains underutilised due to a gap in local technical expertise. Meanwhile, a colleague of mine Dr Chris Malaya based at Parker University has not only developed expertise in the VICON system but has recently acquired newly developed Myoton technology (an innovative tool for quantitatively assessing muscle and tissue properties), which after extensive discussion, it was decided that this combination, could provide a meaningful and innovative new stream of research. In summary therefore, the fellowship, by providing access to this expertise and potentially the future loaning of the Myoton technology itself, intends to provide a platform for staff research capacity growth, institutional collaboration, and the development of new research streams over the coming years.

Objectives

1. Collaboration and Development: Establish and deepen institutional links between HSU and Parker University, with additional future collaboration potential with the University of Houston. Through formal and informal engagement, the fellowship will promote long-term partnerships identifying possible new areas for spine-based research.
2. Knowledge Transfer: Upskill me in VICON and Myoton technologies through direct mentorship with Dr Malaya. This will include guidance and 'loaning' of bespoke coding for the system, system set-up protocols, potential data analysis, and real time experience of human movement assessment protocols. Upon return to the UK, I intend to serve as a local expert and trainer for HSU faculty and students.
3. Capacity Building: Establish a skill base at HSU to support spinal biomechanics research. This includes enabling faculty to independently design, conduct, and analyse studies using motion capture and tissue assessment tools. The aim in the long term will be to elevate research competence and increase outputs in clinical biomechanics at HSU.

Outcomes

The relationship between two Chiropractic Education Institutions has been nurtured and has already led to the transfer of ideas, skills and knowledge. As an example, the clinical system at Parker utilises a 'POD' system in the teaching of final year students. Essentially this provides a unique clinically focused research environment for these students allowing for development under the guidance of research trained staff. This is already increasing capacity at Parker and is something I am in discussions with at HSU, as a similar POD system has recently been introduced here.

I have returned with a more advanced skillset in terms of VICON (Images 3-5) and have been advising the University about future directions. The technology is reasonably complex, and most Institutions it would seem employ a specialist to oversee the use of the system. I will be pushing for either continued training, or the employment of a specialist to help develop the use of the system at HSU. Considering this, I am currently in discussions with staff at HSU about the possible development of a research stream that combines the use of Force Sensing Table technology, with kinematic assessment initially, and perhaps the incorporation of the Myoton technology as the stream develops. There is a current lack of quantitative data collection at HSU from a chiropractic perspective, and this would have the benefit of engaging research novice staff with underutilised technologies available at the University, growing our capacity and enabling students to engage with these resources.

Image 3



Image 4

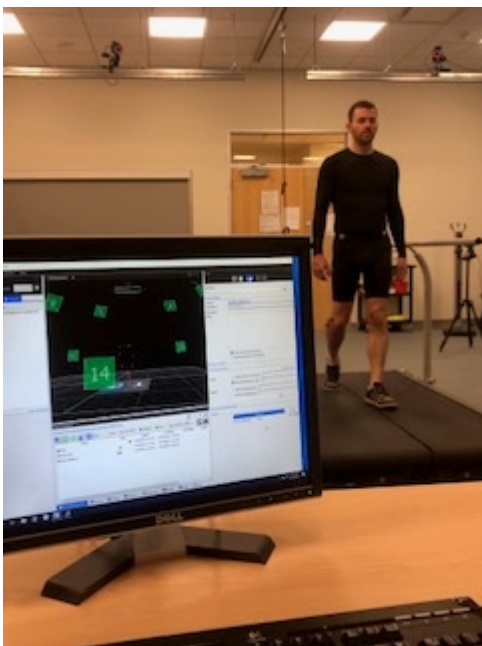
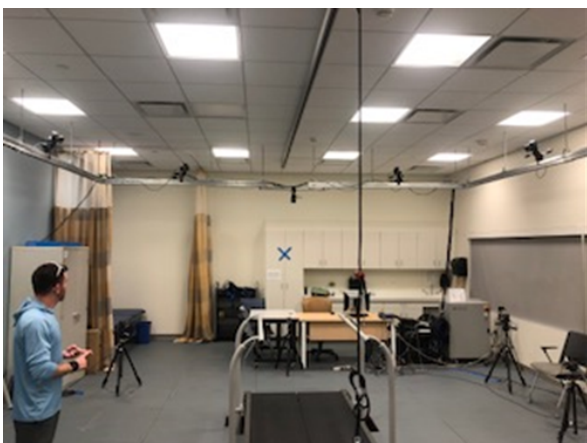


Image 5



Unanticipated benefits of the fellowship

Through discussions of collaboration opportunities, a new venture has been proposed between the two Institutions to stimulate the research engagement of staff, students and chiropractic clinicians. The proposal is to develop a special recurring issue within an established Chiropractic Journal, dedicated to nurturing the academic writing and publishing skills of emerging researchers, including master's level students and novice faculty members, and clinical professionals without doctoral qualifications. This initiative will provide a structured, supportive, and transparent pathway to publication, while maintaining scientific integrity and fostering clinical relevance. The issue will consist of a three-part publication structure supplemented by a final editorial reflection, offering a pedagogical approach to research dissemination and professional development.

This special issue will aim to

- Cultivate academic writing competence among non-PhD researchers.
- Foster professional development through exposure to the peer-review process.
- Bridge the gap between academic research and clinical relevance.
- Enhance the quality and impact of chiropractic scholarship from emerging contributors.

Summary

This fellowship enabled me to visit Parker University and the University of Houston in Texas, where I collaborated with Dr Chris Malaya, a former NASA scientist and expert in motor control, and Professor Chuck Layne, a leader in neuromuscular biomechanics. The primary aim was to gain hands-on experience with advanced movement analysis tools, specifically the VICON motion capture system and the newly acquired Myoton digital palpation technology, and to explore their potential applications in spinal biomechanics research.

The visit successfully deepened institutional ties between Health Sciences University in Bournemouth (HSU) and Parker University, laying the groundwork for future collaboration and research exchange. I received training directly from Dr Malaya in system setup, data acquisition, and analysis procedures using VICON and there is potential for the loaning of the Myoton technology. Upon returning to HSU, I have been advising on the system's integration, and I am working to expand internal capacity, potentially through further training or hiring a dedicated technician.

The fellowship has already led to discussions around new research streams, including combining VICON with force-sensing table technology and, eventually, Myoton, to enhance quantitative research output in chiropractic settings. Furthermore, a shared initiative was proposed to create a recurring special issue in a chiropractic journal, aimed at supporting emerging researchers, clinicians, and master's students in developing academic writing and publishing skills.

Overall, the fellowship will advance institutional research capabilities, has stimulated new partnerships, and will create innovative opportunities for staff and student development in spinal biomechanics and clinical research dissemination.