Research interests

My overall research goal is to improve mobility and functional capabilities through understanding the relationships between sensory, cognitive, gait and balance features in those with neurological disorders, such as Parkinson's disease or mild traumatic brain injury. My research uses a variety of techniques to untangle the complex interactions between these features, such as mobile devices capable of monitoring physiological responses while walking (e.g. eye-tracker, functional near infrared spectroscopy (fNIRS), electroencephalography (EEG)) simultaneously with laboratory measures (e.g. 3D motion capture, walking mat systems) and body worn sensors to monitor movement (e.g. inertial sensors, electromyography). These innovative techniques, combined with visual and neuro cognitive batteries, allow for the examination of relationships between sensory, cognitive and motor task performance. This approach allows investigation of clinically applied assessments and interventions, which can help to understand and develop novel treatment possibilities both within clinic and free-living.

Qualifications

Neurosciences, PhD, Newcastle University
1 Jan 2013 → 17 Jul 2016
Award Date: 1 Sep 2016

Physiotherapy, MSc, Northumbria University
1 Jan 2011 → 21 Dec 2012
Award Date: 21 Dec 2012

Sports Science, BSc (Hons), University of Sunderland
1 Sep 2006 → 5 Jun 2009
Award Date: 5 Jun 2009

Employment

VC Senior Fellow

Sport, Exercise and Rehabilitation

Northumbria University

1 Nov 2019 → present

Oregon Health and Science University

United States

1 Aug 2017 → present

Newcastle University

Newcastle upon Tyne, United Kingdom

1 Jan 2013 → 23 Jul 2017

Durham University

Durham, United Kingdom

1 Aug 2009 → 20 Dec 2009

Research outputs

Wearables in rugby union: A protocol for multimodal digital sports-related concussion assessment

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Investigating the use of an open source wearable as a tool to assess sports related concussion (SRC)

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Links

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Student Supervision

Julia Das - PhD student 2020-present
Dylan Powell - PhD student 2019-present
Yunus Celik - PhD student 2019-present