UNIVERSITY of BRADFORD

Faculty of Engineering & Informatics

Faculty of Engineering and Informatics Newsletter

June 2021

Welcome from the Dean

Following the recent update from the UK Government, we have amended the Faculty return to campus plan, as below. Line managers will shortly be contacting their teams, to arrange individual discussions with staff regarding circumstances with regards to campus attendance during Phase 1 (with effect from 19th July). Over the coming weeks, using HR-developed guidance, our HR business partners will be working with line managers and their teams to finalise local plans and ensure staff are aware of our return to campus approach and timeline for their particular area.

In the meantime, for those of you who have not yet had the opportunity to come back on to campus, a reminder that you should follow the guidance on the Health & Safety web pages here>>

As we work towards completing our end of year assessment and exam boards processes, the University has announced that there will be a Virtual Graduation Celebration this summer. We await further details for the day, however 19th August has been earmarked for this event. If you are available, please make a note in your diaries to help celebrate our students' achievements.

Newsletter summary:

Faculty of Engineering and Informatics – Staff Return to Campus Plan

Phase 0
Until 16 July 2021

Follow National Guidance: "You should continue working from home if possible"

Continue with weekly approvals for campus attendance of staff (and PGR students).
3 days or more per week by exception and with Dean approval (ADRKT for PGR students)
Increased staff access to deliver the agreed taught student offer expected.
Faculty considers additional campus activities on a case by case basis, e.g. Hybrid f2f/online FMC meeting.

Phase 1
From 19 July 2021

Gradual increase in campus attendance and activity

Line managers to use the HR toolkit to guide local team and individual transitions to increased campus engagement in preparation for the new academic year.
Local pace will be controlled by business need and individual circumstances.
Line managers to record weekly attendance in existing online spreadsheet but 3 day and above Faculty approval to be removed.
Overall Faculty pace to be monitored and aligned with campus readiness (e.g. estates work [e.g. Horton D cladding], car parking, IT status, catering outlets ...).

Phase 2
6 September 2021

Established campus model for 2021/2022

Recording and control of weekly attendance to cease.
Staff engagement with campus to reach a business as usual equilibrium with the needs of their role in the Faculty.
Total off-site working only in extremely exceptional cases, approved by the Dean.

Semester 1 teaching begins 27 September 2021

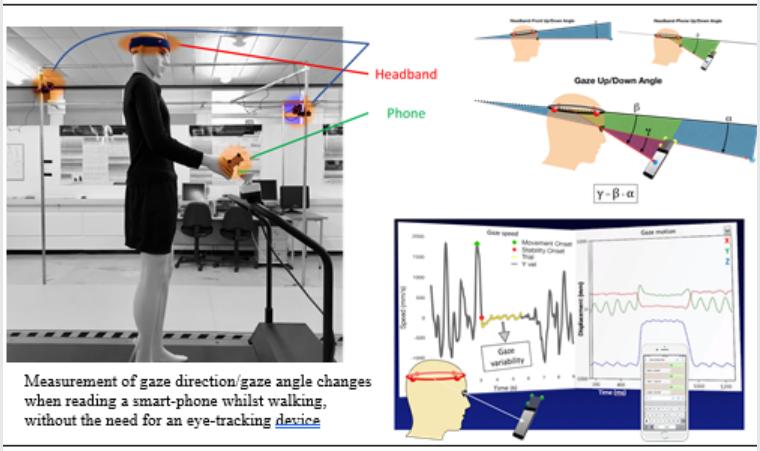
Academic in profile:

Dr John Buckley

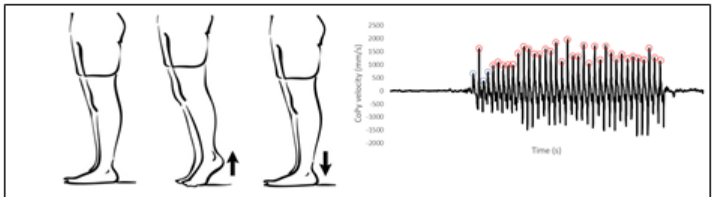
John completed his PhD (in Clinical Biomechanics) at Manchester Metropolitan University whilst working full-time as a Lecturer in Biomechanics. He subsequently worked as a Clinical Biomechanist at Withington Hospital's Gait Laboratory (Manchester). He joined the University of Bradford, in 2002, to undertake post-doc work investigating the link between age-related correctable visual impairment and falls risk. He was then awarded a 3-year Senior Research Fellowship from The Health Foundation, to investigate the link between vision and the biomechanics of gait and posture, and how this link is affected by ageing. He finally joined the School of Engineering as an RCUK Academic Fellow: the aim of this 5-year fellowship was to consolidate the collaborative and interdisciplinary work of the Vision and Mobility/Biomechanics Research Group across the Schools of Life Sciences, Engineering, and Health Studies.

John has helped bring in to the University close to £1.3M of external funding, either as project grants (EPSRC, NIHR, BBSRC), industrial funding (Blatchford, Essilor International), or via doctoral training awards (EPSRC, NIHR, Health Foundation, College of Optometrists). This work has included investigating; whether features to enhance sensorimotor control are necessary in order to gain full advantage of improved lower-limb prosthetic design (EPSRC); how manipulating the appearance of steps and stairs can make them safer for older people to negotiate (NIHR); and the link between visual processing abilities and elite sporting performance (BBSRC). John's main research interests are in developing and using biomechanical modelling to determine the movement adaptations and/or compensatory mechanisms used for locomotion by individuals with musculo-skeletal abnormalities, problems or dysfunction, and/or by those with sensory impairment. He undertakes evidenced based research, giving an understanding of the control and biomechanics of adaptive locomotion, i.e. locomotion that is modulated according to the environment the individual ambulates through.

Since joining the university John has published around 120 journal or conference papers. Due to its interdisciplinary nature, John's work has had impact across a number of fields, which is reflected in his work being published in wide ranging scientific journals, including Experimental Brain Research, Gait and Posture, Clinical Biomechanics, Investigative Ophthalmology and Vision Science, Experimental Gerontology, and Journal of NeuroEngineering & Rehabilitation.



Measurement of gaze direction/gaze angle changes when reading a smart-phone whilst walking, without the need for an eye-tracking device



Rising up onto the toes (UTT) as many times a possible within 30 sec. Analysis of the changes in the forwards-backwards velocity of the instantaneous location of the ground reaction force vector, provides a means to determine UTT movements completed fully, plus the consistency in how movements are completed. Such measures may predict a person's risk of falling on stairs.

Current research interests:

His current work includes, understanding visual performance under dynamic testing conditions and its association with gait safety and fear of falling; and how biomechanical outcomes from simple everyday tasks predict stairs falls risk.

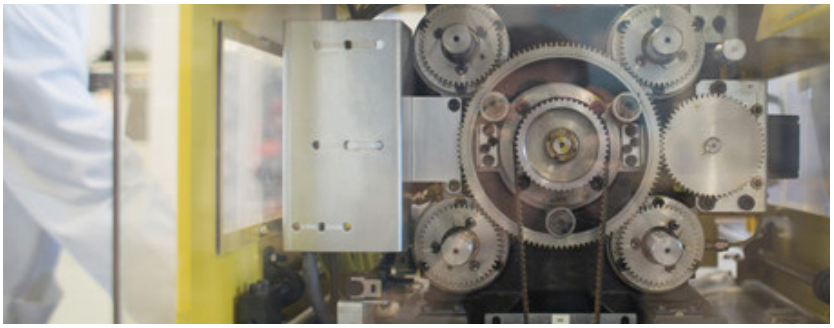
Research projects:

- College of Optometrists Postgraduate Scholarship 2018 (£57.7k, 2019-22). Visual performance under dynamic testing conditions and its association with gait safety and fear of falling.
- Grow Med Tech – Proof of Feasibility (£20k; unsuccessful). Falls Risk assessments in Primary Care.
- Stroke Association project grant (£154.3k; unsuccessful). Utility of physiotherapists using free-living gait assessment to inform how stroke rehabilitation is devised and to evaluate recuperation in community living individuals: a feasibility study.

Research and Knowledge Transfer

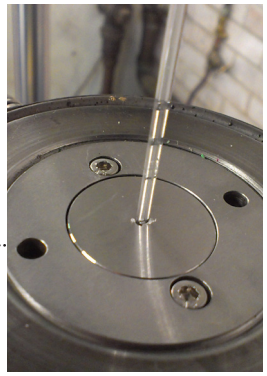
Projects submitted:

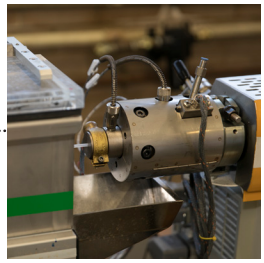
- Project MONARCH: Accelerating Electrification 100% EV, Felician Campean
- Vision Surgery KTP, Rami Qahwaji
- Novel 3D Bioprinting Bi-Layer Synthetic Cornea, Farshid Sefat
- Bradplas Connecting Innovation, John Sweeney
- Adopting Circular Economy Business Model for Resource efficiency in ICT industry (ACE4ICT), Dhaval Thakker
- Development of an innovative business toolkit for microbusinesses using Artificial Intelligence and Information-driven Expert Systems, Daniel Neagu



Open calls for funding:

- Expression of interest: automotive transformation fund round 12, Closing date: 21 July 2021 11:00 UK time
- Biomedical catalyst 2021: early and late-stage awards, Closing date: 26 August 2021 11:00 UK time
- Digital technologies for health and care, Closing date: 21 July 2021 16:00 UK time
- Develop digital economy research communities with NetworkPlus, Closing date: 29 July 2021 16:00 UK





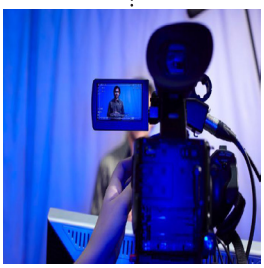
International Women in Engineering Day 2021

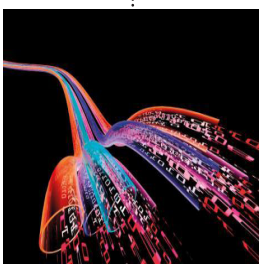
The Faculty of Engineering and Informatics and the University Gender Staff Forum hosted an event on Wednesday 23 June to celebrate International Women in Engineering Day 2021.

The event was chaired by Dr Elaine Brown, Associate Dean Equality, Diversity & Inclusion. External panel members were Dr Paula Palade and Miss Naseem Ghazali, who have both recently been appointed to Honorary positions in the Faculty.

Mechanical Engineering student, Sumaiya Khan, and Biomedical Engineering student, Manja Ehmke, joined the panel and provided insights relating to people and circumstances that influenced them, and the importance of events such as this in helping young people explore their career options.

More here>>



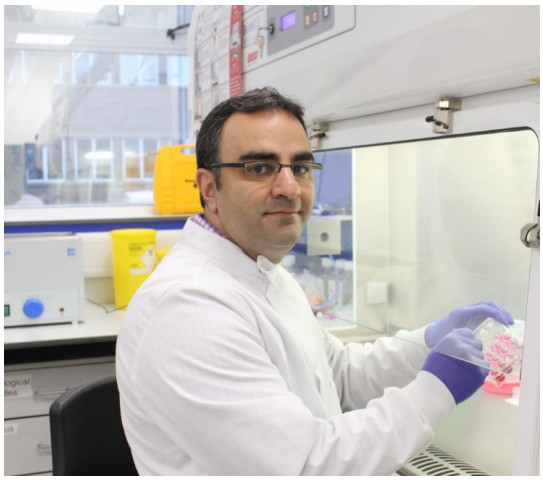


Staff and Students' news

Dr Jaan Pu presenatation to an Indian National Webinar

The National Webinar on 'Recent Environmental Challenges and Sustainable Measures for their Mitigation (RECSMM-21)' had Jaan as Special Guest Speaker. Jaan spoke about his group research expertise in Water Engineering and Compex Natural Flow Modelling.

The event was jointly organized by P.G. Department of Geography & Department of Botany at Maharani Janki Kunwar College, Bettiah, West Champaran, Bihar, India.



About College
The college was established in 1955 and is one of the oldest colleges in North Bihar. It is a constituent unit of B. R. Ambedkar Bihar University, Muzaffarpur. The college offers undergraduate and post graduate courses in humanities, science and computer applications. The College is situated in the heart of Bettiah town (West Champaran), in Bihar.

Chief Patron
Prof. Hanuman Prasad Pandey, Vice-Chancellor, B.R.A. Bihar University, Muzaffarpur, Bihar, India

Patron
Dr. Surendra Prasad Kesri, Principal M.J.K. College, Bettiah

Conveners
Dr Barkha Chaplot, Assistant Professor, P.G. Department of Geography, M.J.K. College, Bettiah
Dr Menka, Assistant Professor and Head, Department of Botany, M.J. K. College, Bettiah
Email- recsmm.21@gmail.com

Co-Convener
Dr Tripti Kumari, Assistant professor, P.G. Department of Geography, M.J.K. College

About Webinar
In recent few decades, there has been a drastic change in life style of human civilization. This has resulted in several problems including pollution of air, water, and soil, deforestation, desertification, ecological imbalance and ultimately climate change. The use of eco-friendly and renewal resources may reduce and mitigate these problems, which will be the focus area of present webinar.

Focus Area
RECSMM-21 will cover following topics but would not be confined to it wholly:
- Environmental Pollution and its bioremediation
- Water Resources and its management
- Hazardous Waste Management (pesticides, trace metals etc.)
- Ecological imbalance, Global warming and Climate Change
- Sustainable development
- Remote Sensing and GIS applications for environment management
- Population and Environment
- Environment and Health
- Environmental Policies

Maharani Janki Kunwar College, Bettiah, West Champaran, Bihar, India
(A constituent unit of B.R.A. Bihar University, Muzaffarpur)

Two Day National Webinar on
Recent Environmental Challenges and Sustainable Measures for their Mitigation (RECSMM-21) (27th to 28th May 2021)

Jointly Organized by P.G. Department of Geography & Department of Botany M.J. K. College, Bettiah, West Champaran, Bihar, India

Proof of Concept Grant awarded to Dr Farshid Sefat

The project is funded by the National Biofilms Innovation Centre and is focused on treatment of vaginal infection using tissue engineering technique.

This is a collaboration between Life Science and Engineering (Biomedical and Electronics Engineering Department) with Virustatic Ltd to act as industrial partner.

Dr Kavian Cooke publication in Science Direct, Vacuum

The paper is a comparative analysis and characterization of the microstructural evolution within the weld nugget for joints produced by friction stir spot welding (FSSW) and modified friction stir clinching (MFSC) processes.

The results show that the use of modified friction clinching process improves the welded joint by eliminating keyholes/hook defects leading to the formation of high-strength joints.

More here>>

Staff and Students' news

Let's Talk About Carers

Who are Carers?
Carers are employees with significant unpaid caring responsibilities that have a substantial impact on their working lives. These employees are responsible for the care and support of relatives or friends who are older, disabled or seriously ill and who are unable to care for themselves. We know that there are many working carers in the University and want to raise awareness and provide support to these colleagues in helping them to balance their caring and work responsibilities.

Let's Talk About Carers
HR have put a guide together which outlines support available to carers working in the University, including relevant policies and procedures, links to internal and external support and guidance for line managers in how to support staff with caring responsibilities.

More here>>

Bradfords UUK reports

In the last couple of months, the University of Bradford worked with the UUK on two reports: 'Internationalisation at home - developing global citizens without travel' and 'Short Term Mobility, Long Term Impact'.

- 'Learning Across Borders and Cultural Awareness for Employability' is a joint activity between UBU, Academic Skills and International Opportunities for International Students. This case study is published in the UUK Report 'Internationalisation at home - developing global citizens without travel' (p. 11)
- 'Entrepreneurs Across Borders' from the School of Management: this case study is published in the UUK Report 'Short Term Mobility, Long Term Impact' (p. 71)

Dr Jaan Pu appointed Member of TPC International Workshop

Dr Jaan Pu was assigned as a Member of TPC for International Workshop on Soil Mechanics and Geotechnical Engineering (IWSMGE2021), under The 8th International Conference on Civil Engineering (ICCE 2021).

The overall objective of the workshop was to promote research and developmental activities and information interchange in fields related to Soil Mechanics and Geotechnical Engineering between researchers, developers, engineers, students, and practitioners working all around the world.

More here>>

Staff and Students' news

Celebrating the Success of the SECRET Network

SECRET, (Secure Network Coding for Reduced Energy next generation mobile small cells) impacted the University on several levels. The network was the first international training network for the University of Bradford that led to over 0.5M€ investment in ESR training. This is the first international research training programme targeting B5G research on mobile small cell technology and virtualization, setting new benchmarks in doctoral training.

The impact at the ESR level was also profound, providing a once in a lifetime experience for ESRs to develop their research training skills. The ESRs can be perceived as deliverables with a quality stamp from an internationally recognized body such as the Marie Curie instrument, opening up further job opportunities in contrast to legacy inter-departmental doctoral programs.

The Bradford dissemination plan resulted in 44 journals and over 46 conference publications that were published and presented at international conferences worldwide. The training events included Industrial Dissemination Day (Huawei Sweden) to provide Bradford ESRs the opportunity with exposure to market relevant research; attending two workshops, co-located with Broadnets 2018 (Faro, Portugal) and IEEE 5G World Forum 2019 (Dresden, Germany).

The team included Professor Raed Abd-Alhameed, leading the RF scientific activities, Professor Rami Qahwaji, and Professor Jonathan Rodriguez the Honorary Senior Researcher coordinating the project at the international level. The three ESRs included Yasir al Yasir, Naser Ojaroudi and Parchin Ahmed Maan Abdulkhaleq. The team also collaborated with Maryam Sajedin and Issa Elferghani from the Instituto de Telecomunicações, leading to several high impact scientific results in power amplifier design.

More here>>

Early Career Research Seminar (ECRF) and 'Shut-up and Write' session

Dr Kit Qichun Zhang spoke at the forum about his work on Non-Gaussian stochastic system theory and its application.

Dr Cristina Tuinea-Bobe and Prof Felician Campean discussed ECRF contribution to PRIPs and RGAPs as well as information about funding opportunities.

Our next meeting is on 21 July 2021, 12 noon.
More here>>

Staff and Students' news

The Automated Solar Activity Prediction (ASAP) system

Rami's work was covered in the E&T Engineering and Technology in the 'All eyes on the Sun' article.

Bradford research focus is to identify the formation of space weather systems that can predict when solar flares are likely to happen. The Automated Solar Activity Prediction (ASAP) system, developed by Prof Rami Qahwaji, Professor of Visual Computing in the Department of Computer Science, detects, records, and predicts sunspot activity.

It uses image processing and artificial intelligence to compare sunspot images provided by Nasa's Solar Dynamic Observatory (SDO) with historical patterns to predict whether a sunspot is becoming more complex, likely to produce more solar flares or if it is no cause for concern. The ASAP system is integrated into Nasa's Community Coordinated Modelling Center portals, which shares data with all space weather watchers around the world.

Solar flares happen all the time but only a few become significant CMEs that damage the Earth, and as result of this co-operation between agencies means that advances in early warning systems are shared worldwide.

Dr Nejat Rahmanian outreach activity

Nejat has submitted two papers, presented by his PGR students, at the ICheaP15 (15th International Conference on Chemical & Process Engineering) organised by AIDIC (The Italian Association of Chemical Engineering) in Naples, Italy. The event was held virtually on 23-26 May 2021 with 960 experts from all over the world attending. His work was on 'Twin Screw Granulation' jointly supervised by Prof. Kelly and the other on 'CO2 Storage as Hydrates in Saline Aquifers' in collaboration with Tomsk Polytechnic University, Russia. The work has been selected for publication in the Chemical Engineering journal. More information about this event here>>

Nejat was also the invited speaker and delivered the keynote lecture on 'Climate Changes and the Way Forward' in the Symposium on Recent Trends in Engineering research on 23 May 2021. A very short report on this has been reflected in Oman Times here >>