



UNIVERSITY of
BRADFORD

Faculty of Engineering
& Informatics

Faculty of Engineering and Informatics Newsletter

January 2021



Welcome from the Dean

At the end of 2020 we were looking with hope to a brighter 2021 but we were proven wrong as a new lockdown was imposed and the return to much desired normality postponed once again.

We continue offering our students the best learning experience possible, in this very rapidly switching circumstances.

Our Research labs continue to be open to carry out business critical activities. The PGR returns are still collated weekly. Our technical support team is on site available. Academic staff returns are following an on-line process via the HoDs. Staff are to ensure that room occupancy levels are observed and that risk assessments are in place. Going forward we will continue to monitor access.

In the meantime stay safe and keep in touch.



Newsletter summary:

1. Academic in profile
2. RKT News (grants applications, open calls, presentations and awards)
3. Staff and Students' news

Covid-19 hardship appeal passes £10k mark as volunteers line up to distribute food

A month after its launch, the University of Bradford's Covid-19 Hardship Appeal has raised over £10,000.

The milestone was reached thanks to many generous donations from alumni, staff and members of the community - the money will be used to help students in financial distress due to the covid pandemic.

More here: <https://www.bradford.ac.uk/news/archive/2021/covid-19-hardship-appeal-passes-10k-mark-as-volunteers-line-up-to-distribute-food.php>



Academic in profile:

Dr Pete Twigg

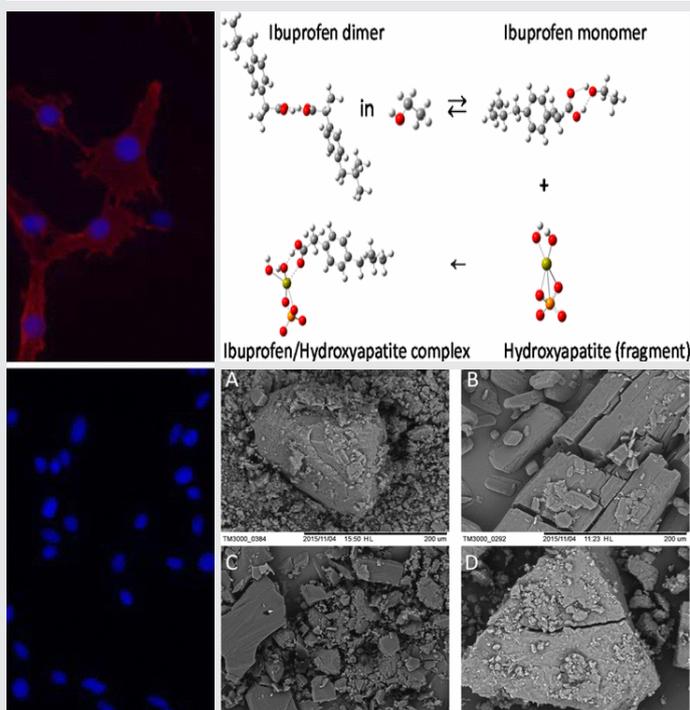


Dr Pete Twigg got his BEng from Surrey and his PhD from Newcastle and he is now Reader in Medical Engineering. Pete heads the Clinical Technology programme at Bradford, which he initially developed in collaboration with local hospitals. He is deeply involved with the development of healthcare science and technology education programmes at a national level, leading on aspects of the Practitioner Training Programme and now working on FE to HE pathways. His research interests lie in the application of mechanical analysis to biological systems, ranging from cells to human movement. The biomaterials aspects of this work often build on his experience of micro- and nano-characterisation, making use of atomic force microscopy, nanoindentation and other engineering techniques, combined with biological and scientific techniques. This has led to him heading national and international research projects.

Pete is active in the Advanced Materials Engineering Research area, developing tissue repair materials and implants using electrospinning and hydrogels. Advanced Materials Engineering Orthopaedics work includes prosthetics mechanics, including joint replacement, fracture fixation, orthotics and lower limb prosthetics; friction and wear simulation and testing, through pseudo-static and dynamic mechanical testing, to 3D kinetic analysis via physiological measurement, such as electromyography.

Pete is one of the [Translate/GrowMedTech Innovation Champions](#) who through their wealth of experience and expertise in developing medical technologies offer advice about technology progression and/or to enhance innovation skills and capabilities. He is currently developing a patent application for a diagnostic test system as well as working with clinical radiographers to develop x-ray imaging reference devices.

Furthermore, Pete was recently appointed as FoEI lead for Wolfson linked/facilitated student projects. Pete will co-ordinate across the 3 FoEI Departments that have interests in this area – Biomedical and Electronics Eng (Digital Health & Biostatistics), Computer Science (Big Data), and MDT (Applied Artificial Intelligence).



Current research interests:

- Tissue mechanics
- Biomaterials
- Tissue engineering scaffold materials
- Cell-surface interactions

Active research projects:

- Development of soft tissue substitute materials, tissue fixation devices, tissue engineering and tissue characterisation.
- Integration and automation of laboratory diagnostic testing.
- Radiographic phantoms to address clinical needs in diagnostic radiography.
- Skin adhesion and skin viability in epi/trans-dermal applications and wound management.

Research and Knowledge Transfer

Submitted Projects:

- Frequency selectivity in phase-only beamformed user terminal direct radiating arrays, Raed Abd-Alhameed/Fun Hu
- Elcometer - 25876 manufacturing, Ben Whiteside
- Extrusion for Kinectrics, Tim Gough
- Bridging CCUS Technology and Societal Awareness in Addressing Climate Change through UK-Malaysia Partnership, Nejat Rahmanian
- KTP - U energy group/ Geev Mokryani

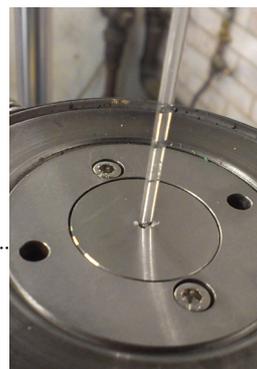
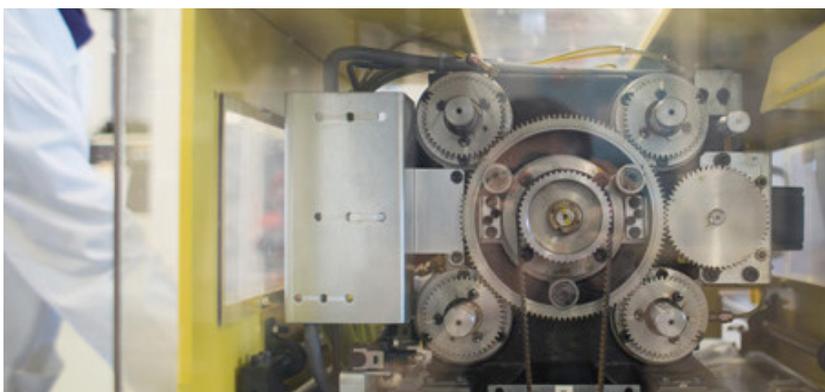


Prof Tim Gough is awarded £95k World class laboratories (WCL) funding

Prof Tim Gough, Phil Coates, Adrian Kelly, Ben Whiteside, Bana Shriky, Mo Isreb applied for funding for the replacement of the Shear Rheometer within IRC Materials Characterisation Laboratories.

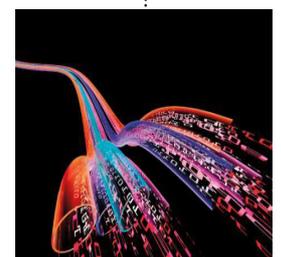
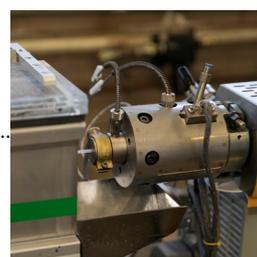
Following review of the applications the panel agreed to fund the request to replace the rheometer by allocating £94,824, which must be spent by 31 March 2021.

The purchase process started in December, immediately after the award announcement.



Open calls for funding:

- [ATF moving the UK automotive sector to zero emissions](#), closing date: 27 January 2021 11:00
- [SBRI removing air pollutants from homes to safeguard health](#), closing date: 13 January 2021 11:00
- [GCRF UKRI-JST-DOST research collaborations in south east Asia](#), closing date: 10 February 2021 16:00
- [NERC highlight topics](#), closing date: 25 March 2021 16:00
- [EPSRC postdoctoral fellowship](#), closing date: open - no closing date



Staff and Students' news

Materials Science & Engineering C article by Dr Farshid Sefat on hybrid scaffold

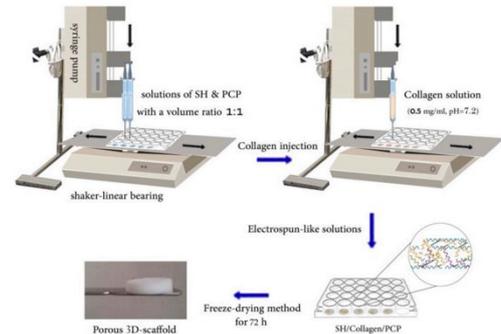
Dr Farshid Sefat published his recent research findings in the field of Biomaterials and Skin Tissue Engineering in the journal of Materials Science & Engineering C (Elsevier- impact factor 5.88). This international collaboration research work on the fabrication and testing of hybrid scaffold resulted in the differentiation of human-adipose-derived stem cells into skin cells (keratinocytes). Such scaffolds can mimic skin properties and act as the growth factor through inducing keratinocytes differentiation.

More here: <https://www.sciencedirect.com/science/article/abs/pii/S0928493120336717>



Fabrication of 3D hybrid scaffold by combination technique of electrospinning-like and freeze-drying to create mechanotransduction signals and mimic extracellular matrix function of skin

A Izadyari Aghmuni^{a,*}, S. Heidari Keshel^{b,c,d,e}, Farshid Sefat^{d,e}, Azim AkbarzadehKhyavi^a



Prof Hassan Ugail speaks about deep face recognition

Hassan delivered on December, 23 his take on deep face recognition in the 'Distinguished Lecture series' at Universiti Teknologi Malaysia (UTM). This builds on his visit to UTM as part of WTUN Exchange Program.

More here: <https://news.utm.my/>

UTM Engineering **DISTINGUISHED LECTURE SERIES**

"Deep Face Recognition for Unmasking the Face of a Spy and More"

DATE: 23 DECEMBER 2020
TIME: 4:00pm (Malaysia) / 8:00am (GMT)

Faculty of Engineering UTM JOHOR BAHRU **LIVE STREAMING**

Professor Hassan Ugail
Director, Centre for Visual Computing
University of Bradford, UK

SUSTAINABLE DEVELOPMENT GOALS



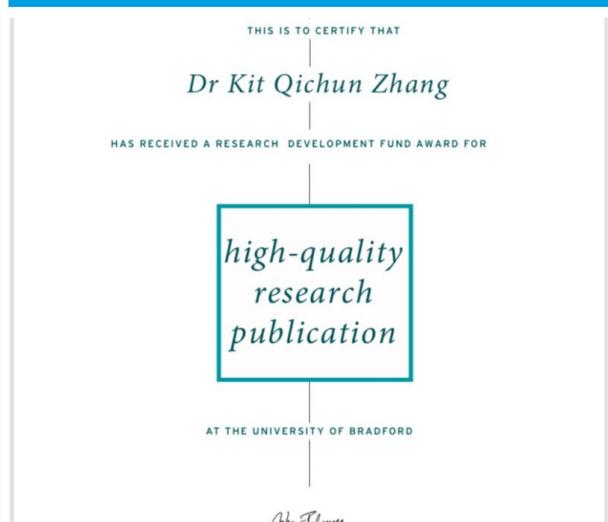
Dr Kit Zhang wins the 'High-quality Research Publication' Award

Kit won the award with his paper on 'Neural Membrane Mutual Coupling Characterisation using Entropy-based Iterative Learning Identification' published in IEEE Access.

This paper investigates the interaction phenomena of the coupled axons while the mutual coupling factor is presented as a pairwise description.

You can find Kit's publication here: <https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9257495>

More about the award here: <https://unibradford.ac.sharepoint.com/sites/research-and-knowledge-transfer-support-intranet/SitePages/Monthly-Publication-Award-winners.aspx>



Staff and Students' news

Prof Ashraf Ashour is awarded Royal Academy of Engineering (RAE) Visiting Professors award

Ashraf is the winner of the Visiting Professor award from RAE for Mr James Wardman, Ove Arup & Partners Ltd. James's knowledge and experience will be most beneficial to our students and will provide industry relevant taught materials beyond theoretical classroom studies.

More about this funding scheme here: <https://www.raeng.org.uk/grants-prizes/grants/schemes-for-people-in-industry/visiting->



Dr Nejat Rahmanian stays engaged with the Oil/Gas sector during lockdown period

Nejat has delivered two presentations to Petrofac, a multi-national oil/gas engineering company. Before Christmas, on 21 December 2020, Nejat talked about climate change, followed by a presentation on gas hydrate on 15 January 2021. His talks received very positive feedback from the audiences, and enhances visibility of the Chemical Engineering Department. Furthermore, in early January, Nejat continued his industrial engagement by introducing Chemical engineering research and his research on gas hydrate/ climate change to Axens (www.axens.net), an engineering company part of the Institut Français du Pétrole (IFP), France.

Prof Hu, Prod Abd-Alhameed and Dr Al-Yasir are the editors of a special issue for the MDPI Sensors journal

The special issue of Sensors (ISSN 1424-8220) belongs to the section "Communications" and is focused on "Microwave and mmWave Sensors for 5G and 6G Healthcare Systems"

- Deadline for manuscript submissions: 31 December 2021.
- More about the journal here >>



PhD Success

Mr Ahmed Mazen,
Supervisors: Dr Nejat Rahmanian, Prof Iqbal Mujtaba
Mr Philip Peletiri
Supervisors: Dr Nejat Rahmanian, Prof Iqbal Mujtaba

Congratulations!

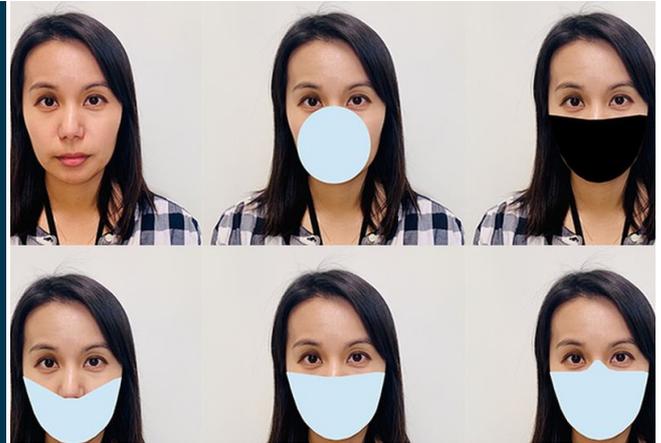
Staff and Students' news

Prof Hassan Ugail talks about Covid and facial recognition at BBC News

Like many people who began to wear a face mask during the pandemic, Hassan quickly noticed one or two technical niggles like his iPhone having trouble recognising his face.

Coincidentally, research he conducted with one of his PhD students that was published last year had shown that half a face was enough for a specially trained facial recognition algorithm to work.

Read Why Covid may mean more facial recognition tech in the BBC News article [here >>](#)



Members of the ECRF promoted to Programme Leaders

Dr Farshid Sefat, Dr Kavian Cooke and Dr Sohag Kabit were appointed Programme Leaders for Biomedical Engineering, Mechanical and Energy Systems Engineering and respectively MSc Internet of Things and MSc Big Data Science and Technology programmes.

We congratulate them and wish them every success in the new role.



Early Career Research Seminar (ECRF):

Dr Kulvinder Panesar introduced us in her talk to the challenges and directions of Conversational AI.

Dr Cristina Tuinea-Bobe talked about the Research challenges during the pandemic.

Our next meeting is on 17 February 2021, 12 noon, followed by a 'Shut-up and write' session.



Staff and Students' news

Dr Kulvinder Panesar and Prof Hassan Ugail host the Research Seminar Series

The Centre for Visual Computing (CVC) delivers a Research Seminar Series (RSS) in the academic year 20-21, which is hosted and co-ordinated by Dr Kulvinder Panesar supported by the Director of CVC - Professor Hassan Ugail. The aim of the RSS is to attract research collaborations, disseminate research development work, bring academic and business worlds closer, and encourage PHD applications to UOB - both nationally and internationally. Seminar 6 titled ' Learning with Augmented Reality – A Case Study' by Dr Carlton Reeve. In this short talk he explored the design and development of two augmented reality apps produced in the summer of 2020. Funded by UKRI and produced by London agency Factory 42, My Dino Mission AR and My Robot Mission AR has specific learning objectives from sponsors in the Natural History Museum and National Museum of Science and Industry. Dr Reeve worked with the developers to ensure that the apps were both enjoyable and effective educational experiences for children as the intended audience.

Seminar 7 was a generic but critical topic for postgraduate and academic researchers – titled "Academic writing - maximising your chance of getting papers accepted in journals and conference proceedings", delivered by Professor Hassan Ugail – the Director of CVC, exceptional expert and researcher.

Previously, seminars 1 to 5 have included (1) ' Visual Analytics for Health and Care?' by Dr Mai Elshehaly; (2) 'Preclinical screening of new cancer therapies' by Dr Steve Shnyder; (3) "Using the Nonadoption, Abandonment, Scale-Up, Spread and Sustainability (NASSS) framework to extend an AI synthesis system for behaviour change research by Dr Peter Branney (UOB) and Dr Emma Norris (Brunel University); (4) 'Programming Human-Computer Empathy (HCE)' by Professor Paul McKeivitt, Ulster University; (5) 'Image Colour Constancy Adjustment Techniques' by Dr Akbar Sheikh Akbari, Leeds Beckett University.



Dr Behruz Khaghani, a member of editorial board of American Journal of BioScience

Dr S A Behruz Khaghani is leading research and technical support in the department of Biomedical and Electronic Engineering. Behruz has been recognised and accepted as a member of the editorial board of The American Journal of BioScience . The Journal provides a forum for the publication of scientific research and review articles. The journal publishes original full-length research papers in all areas related to biochemistry, molecular biology, cell biology, biotechnology after peer review. Apart from his academic awards, Behruz is also contributing to professional institutions and journals as a member and reviewer such as:

Professional membership:

- International Cartilage Regeneration & Joint Preservation Society (ICRS)

Journals reviewer of:

- Journal of Cell Proliferation
- Journal of the Mechanical Behavior of Biomedical Materials
- Biomedical Engineering Online

About the journal [here >>](#)



