UNIVERSITY of BRADFORD

Faculty of Engineering & Informatics

Faculty of Engineering and Informatics Newsletter

April 2022

Welcome from the Dean

Welcome back after the Easter break. I hope you all took the opportunity to take some time off during the first few of weeks of April. A reminder again that only 10 days annual leave can be carried forward into the 2022/23 academic year. If you do have 10 days remaining at the end of July, these days will automatically be rolled forward in MyView; no further action is needed.

We have received the dates for the Faculty Award Ceremonies in July. The 2022 graduands will be processing on Thursday 21st July and the 2020 and 2021 graduates have also been invited back to attend a special ceremony on the morning of Friday 22nd July, for those students who were unable to share their success with their families on campus during Covid restrictions. Please could academic staff make every effort to attend these ceremonies as the students like to see as many familiar faces as possible as they walk up to receive their awards. An invite will be sent to your calendar in due course as a reminder. I would like to thank Professor Alastair Wood who is taking the Dean role on 22nd July as my daughter is graduating from the University of Sheffield on that day, and I cannot miss that.

Two colleagues in the Department of Civil and Structural Engineering have been successful in their recent promotion applications. Dr Amir Khan becomes an Associate Professor and Dr Mostafa Mohamed a Professor, with a proposed title of Professor of Geotechnical Engineering. Please join me in congratulating Amir and Mostafa.

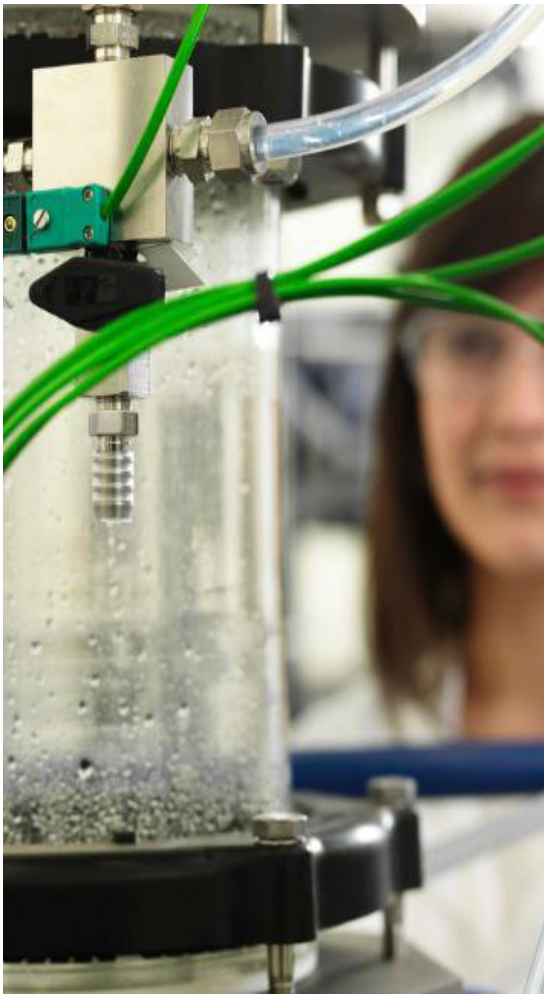
Newsletter summary:

University of Bradford's Sanctuary Scholarship scheme now open

Launched last year, the scholarships are designed to make it easier for asylum seekers and refugees to enter higher education. Under the scheme, each applicant can apply for a £4,000-a-year grant, subject to terms and conditions.

Successful 'sanctuary scholarship' applicants already receive a 'no tuition fee' place at the University but prior to the introduction of the new scheme in 2021, the annual study support grant stood at £500. This was increased to £4,000. The University of Bradford awards 10 sanctuary scholarships each year.

More information here>>



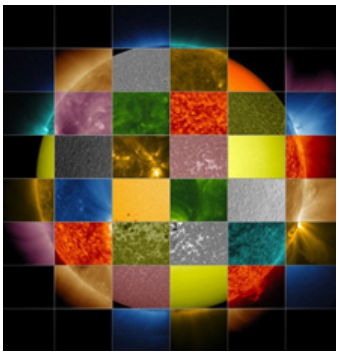
Academic in profile:

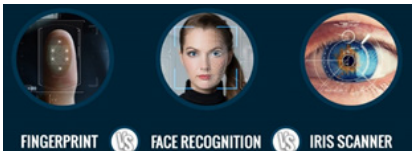
Professor Rami Qahwaji

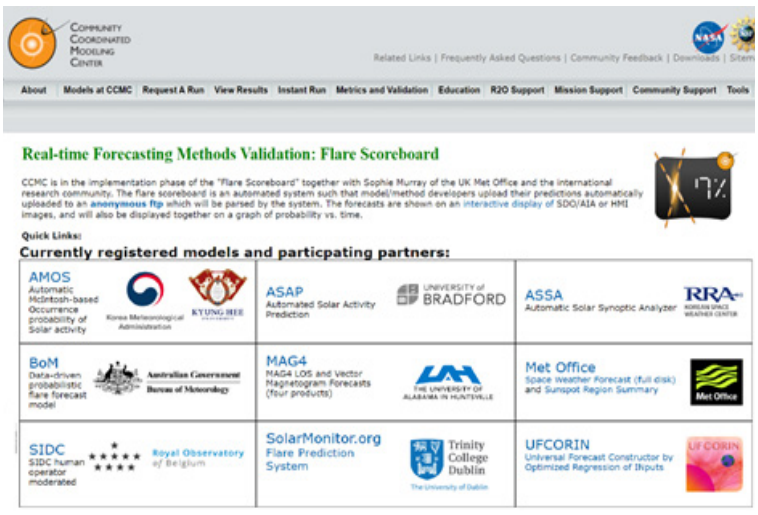
Rami is a Professor of Visual Computing, the REF 2021 Unit of Assessment Coordinator for Computer Science and Informatics (B11) and a member of the University Senate and also the University Council. He was the Academic Director for the Digital Catapult Centre Yorkshire and Academic Lead for the Healthcare Technology Unit at the Digital Health Enterprise Zone (DHEZ). For his undergraduate studies Rami had a mix of experiences, as he studied Applied Physics at Kuwait University for 1-year, Computer Science at the University of Jordan for 1-semester before moving to Al-Mustansiriyah University (Baghdad) where he obtained a BEng in Electrical Engineering and MEng in Control and Computer Engineering. Rami later obtained his PhD in AI and Visual Computing from Bradford University in 2002.

Rami has been working with different industries in the fields of satellite/space imaging, remote sensing, digital health and imaging, Biometrics, AI and data visualisation developing intelligent systems in collaboration with NASA, ESA, NHS and different SMEs. Rami led the development of the real-time ASAP (Automated Solar Activity Prediction) system, which is now working with NASA's Solar Dynamics Observatory satellite, integrated into NASA's online space weather portal CCMC, used as a decision-making tool for NASA's robotic missions and to manage radiation effects on NASA's Chandra x-ray observatory orbit. ASAP is widely acknowledged as an international benchmark. Rami is also working with different NHS organisations on the diagnostics of different eye diseases, Parkinson's disease, optimisation of A&E operation, etc. Rami has active research in multimodal and multi-wavelength Biometrics in the fields of face, iris and fingerprints recognition. Rami is a Fellow of the Institution of Engineering and Technology (FIET), a Chartered Engineer (CEng), an IET technical assessor and also sits on the IET's Healthcare Sector Executive Committee.

Rami has been invited to deliver many keynote speeches at national and international conferences. He has supervised 32 completed PhD projects and is an external examiner for several UK and international universities. He is heavily involved in the organisation of international activities and public engagement events.







Current research interests:

2D/3D image processing, machine learning, data science, digital health, design of machine vision systems.

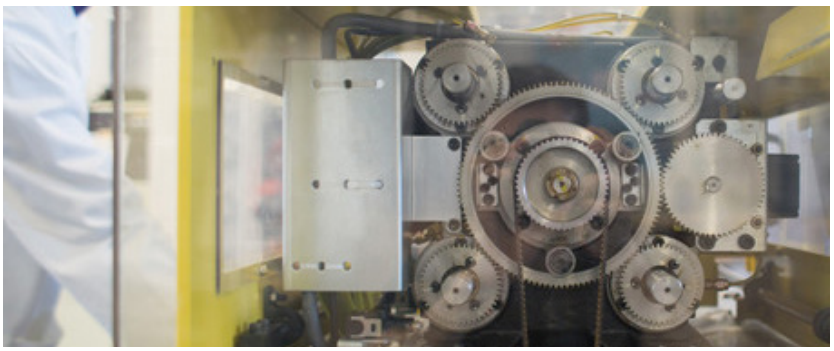
Research projects:

- KTP Vision Surgery Ltd (New): Development of Smart Platform for the Optimisation of Cataract Surgery
- H2020: Secure and Wireless Multimodal Biometric Scanning Device for Passenger Verification Targeting Land and Sea Border Control
- Development of Visual Computing and AI Technologies to Diagnose Movement Disorders Associated with Parkinson's Disease
- H2020: SECRET- SEcure Network Coding for Reduced Energy nexT generation Mobile Small cells
- AI Technologies for the prediction of gestational diabetes – in collaboration with the Faculty of Life Sciences

Research and Innovation

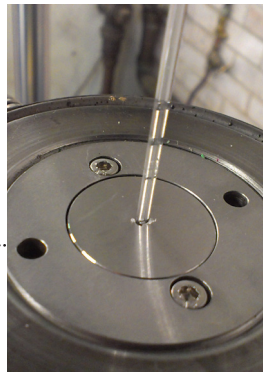
Project Pipeline:

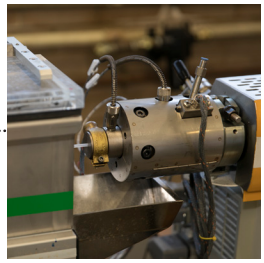
- Enabling urban flood risk quantification considering spatially distributed uncertainties, Yakun Guo
- Bio-Copilot: Human-level Automated Bio-modeller for Synthetic Biology, Savas Konur
- Whole Energy System Networking Fund, Cuong Dao
- Smart Grid Universal Storage Bus Systems (SG-USBs), Geev Mokryani
- Secure Integrated Space-Aerial Networks for Cloud Based Ubiquitous In-Flight Broadband Services (SCI-CLOUD), Raed Abd-Alhameed



Open calls for funding:

- Surveillance and diagnostics for antimicrobial resistance, Closing date: 14 June 2022 12:00 UK time
- NATEP helping SMEs innovate in aerospace: spring 2022, closing date: 18 May 2022 11:00 UK time
- MyWorld collaborative research and development, closing date: 1 June 2022 11:00 UK time
- Expression of interest: digital health hub pilot scheme, Closing date: 11 August 2022 16:00 UK time



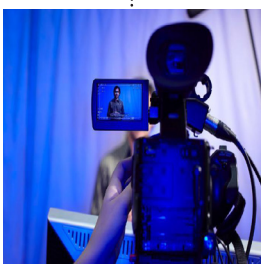


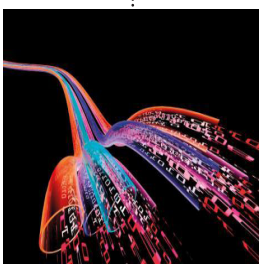
Sustainable Environment Workshop

The FoEI Strategic Research Landscape exercise carried out in 2021, setting up the research environment for the next REF period, has identified four over-arching research themes for the Faculty - Smart Health Systems, Sustainable Environments, Advanced Materials and Smart Industrial Systems. This exercise was driven by the individual PRIPs returned by academic staff and the RGAPs (Research Grant Action Plans) produced by the Research Centres and Groups.

The Sustainable Environment workshop was arranged on 6th April for over 20 active researchers who have an interest in engaging in activities relevant to this theme.

The workshop identfied the following areas of interest: Sustainable/Smart Materials/ Structures, Water for sustainable future, Sustainable energy, Life Cycle Analysis and Circular economy.





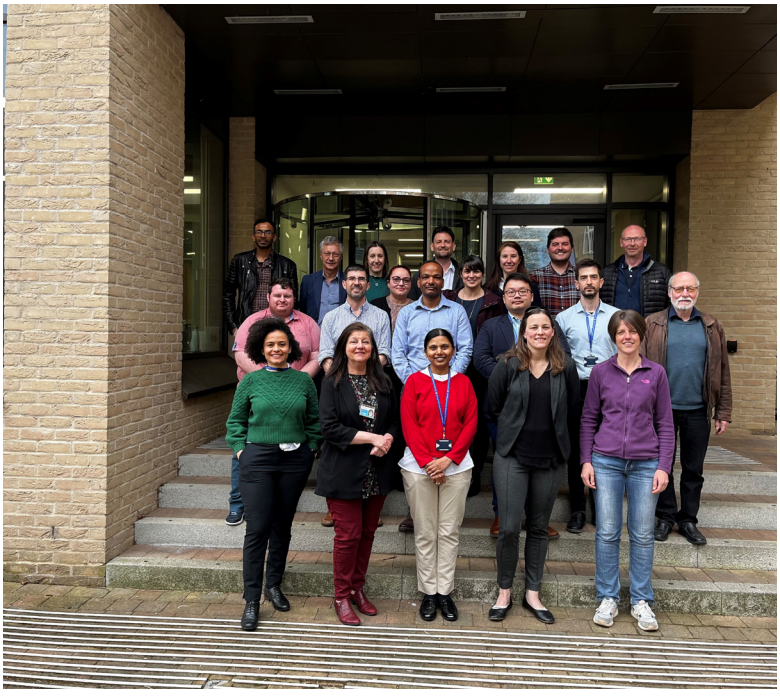
Staff and Students' news

SAFI : Statistical data Analysis For Industries

Bringing together the University of Bradford, Valeo, Renault Group, Airbus and Stellantis, the SAFI consortium, started in 2017, develops training modules to strengthen the technical competencies to close the skills gaps in the field of statistical analysis and robust engineering.

The team has not only vast theoretical knowledge but also real-world experience to deliver the following modules: Statistics for Engineering, Statistics for Reliability Engineering, Robust Engineering, Statistics Applications of Industrial Big Data, Industrial Big Data Analysis & Mining. All modules from 1 to 6 days are driven by Visio (remote session) with 4 key speakers (2 University Profesors and 2 Industrial experts) and certified by University of Bradford. All courses are very pragmatic and real industrial-use-cases are explored. Several expert talks enrich all sessions. Python under R Collab is used and all source codes are provided. Specific training for Python usage (module M0 - 1 day training) and / or Basics of Statistics (module M1 - 5 days training) are part of our SAFI offer.

More here>>



Last scientific meeting for Resilient Materials for Life (RM4L)

RM4L is an EPSRC funded project being undertaken by researchers at Cardiff, Bath, Bradford and Cambridge Universities.

The project comprises four research themes which address: self-healing of cracks at multiple scales; self-healing of time-dependent and cyclic loading damage; self-diagnosis and immunisation against physical damage; and self-diagnosis and healing of chemical damage.

These themes bring together complementary technologies using laboratory experiments, numerical modelling and site trials which, under the guidance of the project's industrial partners, will address a diverse range of applications such as cast in-situ and precast concrete, repair systems, overlays and geotechnical systems.

On 30th March the programme had its last researchers meeting in Cambridge with 11 technical presentations, one from our team at Bradford led by Prof John Sweeney who worked on this project with Glen Thompson and Cristina Tuinea-Bobe.

More about this EPSRC programme here>>

Staff and Students' news

Dr Mark Goodall AHRC grant success

Dr Mark Goodall has been awarded a public engagement grant in partnership with BBC History as part of the AHRC fund, 'What does the BBC mean to me? 100 years of BBC broadcasting'.

The 'Postscripts' were a series of short BBC radio broadcasts made by Bradford-born writer J.B. Priestley during World War Two which offered personal portraits of events large and small. This project will develop a new set of 'postscripts' for BBC Sounds and local BBC radio. These will be inspired by Priestley's original broadcasts but with a diverse range of voices and providing fresh takes on British cultural history and the British landscape. This project will harness the form, content and spirit of the postscripts and the links between Priestley and the city of Bradford to tell new stories about the world we inhabit.
Although Priestley's 'Postscripts' were broadcast during wartime, they often focussed on smaller everyday experiences - trips out, food and the weather. Partnering with the BBC to develop ideas based on its archive and deliver the projects in an appropriate format, these 'New Postscripts' will build on broadcast legacy to inspire and develop original expressions in sound in order to paint a diverse portrait of contemporary live experience.

Co-investigators on the project are Dr Karen Thornton (MDT) and Dr Yunis Alam (FoMLSS).

More info here >>

Dr Panesar - was a speaker at the Great Northern AI Summit 2022

On March 17-18, 2022, the largest AI show in the North of England was held, where all AI leaders, practitioners, academics and enthusiasts came together to discuss AI, data trends and innovative technologies.
University of Bradford was a platinum sponsor. Kulvinder was part of the organising team, and a panel member out of 5 on the Business track for the discussion on 'Diversity and Inclusivity in AI Tech' (physical session).

More about this event here>>

Staff and Students' news

Alumni Dinner arranged by the Chemical Engineering Student Society

The dinner was held in the Midlands Hotel on 25th March, 2022, and was organised by the Chemical Engineering Society. A total of 31 people attended the dinner with a mixture of academics, alumni and students. Roger Page was one of the attendees and guest speakers, he graduated in 1967 before pursuing an incredible career in the pharmaceutical and technological world. He is now retired but was involved in the development of PCR tests and Lateral Flow tests that we now use for COVID-19 testing, stabilization of DNA at room temperature, sterile filtration, etc. His father was also the first Professor and Head of Chemical Engineering in our University! Two other speakers included Alex Reeves, currently a Masters student at Imperial College London, and Benjamin Fadele, currently doing his placement year and is part of the University's sustainability team. This event would not have been possible without the support of Dr Chakib Kara-Zaitri, Dr Elaine Brown, Prof Adrian Kelly, Dr. Pedro Arillaga, Dr Yakubu John, Mr Nicholas Nyamayedenga, Dr Nejat Rahmanian.

The aim of the event was to bridge the gap between students and the industrial world, giving students an insight on what careers are available to us in the future. Overall the event has made a huge impact on the students by highlighting possible career paths.

The society has bigger plans for the future - they are currently in the early stages of planning a new Chemical Engineering competition, supported by the Faculty and IChemE, a careers fair and industrial visits and workshops.

Jacqui Griffin Screen Advisor/Programme Coordinator for The Unit Bradford

The Unit is a new open-access production space in the Bradford district, launched officially on 16 March 2022. Backed by Channel 4 and Bradford Council and delivered as a partnership between Impact Hub Bradford and Keighley Creative, The Unit will be:
- a hub for the district's already accomplished filmmakers and content creators.
- a place to improve opportunities for sustainable employability in commercial TV and film production, as well as digital short form.

The Unit aims to be a hub of production, learning, and supported and targeted networking for filmmakers and content creators in the Bradford district.

Jacqui will be working on designing the programme of events for the space and supporting the Screen Hosts and generally guiding The Unit team.

More about The Unit activity here>>

Staff and Students' news

Dr Bana Shriky research output activity

The Polymer IRC team comprising Dr Bana Shriky, Prof Adrian Kelly and Prof Tim Gough published a new paper titled the 'The effect of PEO homopolymers on the behaviours and structural evolution of Pluronic F127 smart hydrogels for controlled drug delivery systems' in 'Colloids and Surfaces A'. The comprehensive study provides insights into the structure-property relationship of different hydrogel matrices using thermorheological and Neutron Scattering methods at conditions imitating manufacturing and administration. The reported results are essential for the development of personalised drug carrier systems and the understanding of condensed soft matter under deformation.

Read the full text here>>

Bana also represented the IRC and FoEI at the 37th Polymer Processing Society Conference held on 11-15th April 2022 in Fukuoka, Japan, where she presented virtually her latest work on smart polymeric materials for drug delivery. The conference focused on new advances in the fields of polymer study and manufacture.

Dr Sefat's publication in Journal of Applied Sciences (MDPI)

The paper called 'Biophotonics in Dentistry' is the result of collaboration between University of Bradford, Swansea University, King Faisal University, Taibah University (Saudi Arabia) and Ferdowsi University of Mashhad (Iran).

This review paper looks at the use and application of photonics in dentistry. More than one hundred review and research articles were comprehensively analysed in terms of applications of photonics in dentistry, including surgical applications, as well as dental biomaterials, diagnosis and treatments. In biomedical engineering, various fields, such as biology, chemistry, material and physics, come together to tackle a disease/disorder either as a diagnostic tool or an option for treatment. This review paper provides a comprehensive discussion of its main elements, such as photoelasticity, interferometry techniques, optical coherence tomography, different types of lasers, carbon nanotubes, graphene and quantum dots.

Read the full text here>>

Staff and Students' news

Prof Phil Coates awarded Polymer Processing Society (PPS) Fellowship

The Polymer Processing Society was founded in March 1985 at the University of Akron, Ohio, USA. The intent was to provide a mechanism and format for interaction and presentation of research results in the international polymer processing community.

The goals of the Polymer Processing Society (PPS), as embodied in its constitution, are to foster scientific understanding and technical innovation in polymer processing by providing a discussion forum for the worldwide community of engineers and scientists in the field. The thematic range of the PPS encompasses all formulation, conversion and shaping operations applied to polymeric systems in the transformation from their monomeric forms to commercial products.

After more than 33 years since it was set up, Polymer Processing Society started to recognizing its eminent members as PPS Fellows for their distinguished record of achievements in scientific and technological developments in polymer processing. Each year, up to 3 Fellows are elected, representing each geographical area - Americas, Europe and Africa, and Asia and Australia.

Phil was awarded the prestigious fellowship during the 37th International Conference of the Polymer Processing Society (PPS-37) held 11 - 15 April 2022 in Fukuoka, Japan. This follows the James L White Award that was presented to Phil at PPS-33 for the development of solid phase orientation processing routes which are exploited in the manufacture of products with greatly enhanced properties.

Phil is also a Fellow of the Royal Academy of Engineering and Fellow of the IMechE and IoMMM, winner of the Netlon Award, the Swinburne Award, the Tianfu Friendship Award and Sichuan International Science Cooperation Award.

Congratulations!

PhD success

PhD student Damilola Agbabiaka, supervised by Dr Farshid Sefat and Dr Pete Twigg, has successfully defended his PhD thesis intitualted 'Fabrication, characterisation and optimisation of electrospun scaffolds for ligament tissue reconstruction'.

Congratulations!

Staff and Students' news

Bradford hosts the Fibre-reinforced Polymer Composites (FPCC) international conference

Composites UK, Fluency Marketing and University of Bradford are organising the FPCC conference, to take place in September this year, and will focus on the development and application of fibre polymer composite materials across construction and infrastructure sectors.

2020 marked the 20th Anniversary of the founding of the two key UK networks for composites in construction (CoSACNet and NGCC), therefore this conference will celebrate that in 2022.

Profs Ashraf Ashour and John Sweeney are the chair and co-chair of the Scientific Committee.

Please find more information here >>

Early Career Research Seminar (ECRF)

Dr Michael Hebda delivered his presentation 'Additive Manufacturing, a look at current research'.

Dr Cristina Tuinea-Bobe gave a presentation on Open Access publishing.

Our next meeting is on 19th May 2022, 13.00, and is followed by a 'Shut-up and write' session.

More here>>