

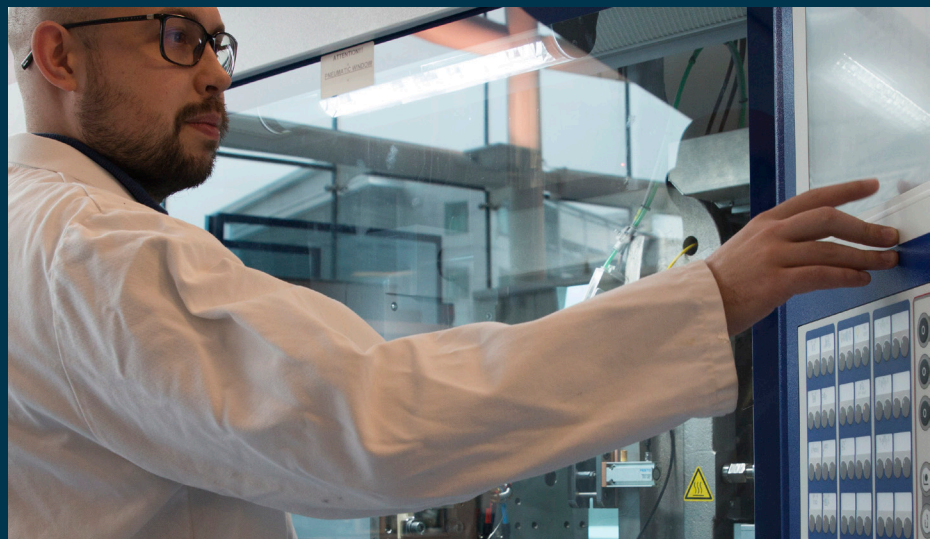


UNIVERSITY of  
**BRADFORD**

Faculty of Engineering  
& Informatics

# Faculty of Engineering and Informatics Newsletter

March 2021



# Welcome from the Dean

Although England is still currently subject to national lockdown restrictions, the University campus remains open, but we will be continuing to limit the number of people on campus to those who are there for permitted purposes, including attending for essential on-campus teaching, learning research, services, and facilities. This is important to limit the risk of infection and help stop the spread of the virus, while the government rolls out the vaccine programme nationally.

We await Government guidance regarding the easing of access restrictions for University campuses and therefore, in the meantime, online teaching and assessment will continue after Easter, until further notice. Many of our overseas students have returned home and are unable to travel to the UK, therefore we must ensure that no groups of students are disadvantaged once access regulations are revised.

It is important that everyone considers taking some annual leave over the next few weeks, whilst we have the break from teaching. Please discuss annual leave with your line managers and book time off through MyView.

Hope you all have an enjoyable and relaxing Easter break.



## Newsletter summary:

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

## LGBT+ History Month: LGBT+ in STEM

Descriptions of unequal representation in STEM most often focus on the gender gap because women are underrepresented, both in post 16 education and in the UK STEM workforce. But there are other gaps in representation and this event aims to explore the gap based on sexual orientation.

On 25 February 2021 we looked to understand some of the reasons why this might happen, highlight how the gap might be challenged and consider how universities and industry can work together to illustrate the importance and advantages of diversity. This event featured the student perspective in addition to STEM professionals sharing their own experiences and those working as allies to ensure that the engineering industry is recognising and serving the needs of all.

More [here](#)>>



# Academic in profile:

## Dr Savas Konur



Dr Konur is a Reader in the Department of Computer Science. He received his B.Sc., M.Sc. and Ph.D. degrees in Computer Science from METU (Turkey), RWTH Aachen (Germany) and University of Manchester (UK), respectively. Before joining Bradford in 2015, he held positions at the University of Liverpool and University of Sheffield. He is a member of BCS, IEEE and a fellow of HEA. He is a committee member of the International Membrane Computing Society (IMCS) and a member of Verification and Validation of Autonomous Systems UK Network.

Savas is an experienced researcher, focusing on theory and practice of computational modelling with innovative solutions to industrial problems (including Smart Manufacturing and Industry 4.0) and cross-disciplinary applications (including Synthetic Biology, Membrane Computing and Infectious Diseases). He collaborates widely with leading research groups and scientists nationally and internationally as well as with partners from industry.

His collaborative and interdisciplinary research programme has been funded by EPSRC, Innovate UK and Access Innovation. He has been the principal investigator for projects worth more than £900K and has contributed as a co-investigator to projects worth more than £1 million.

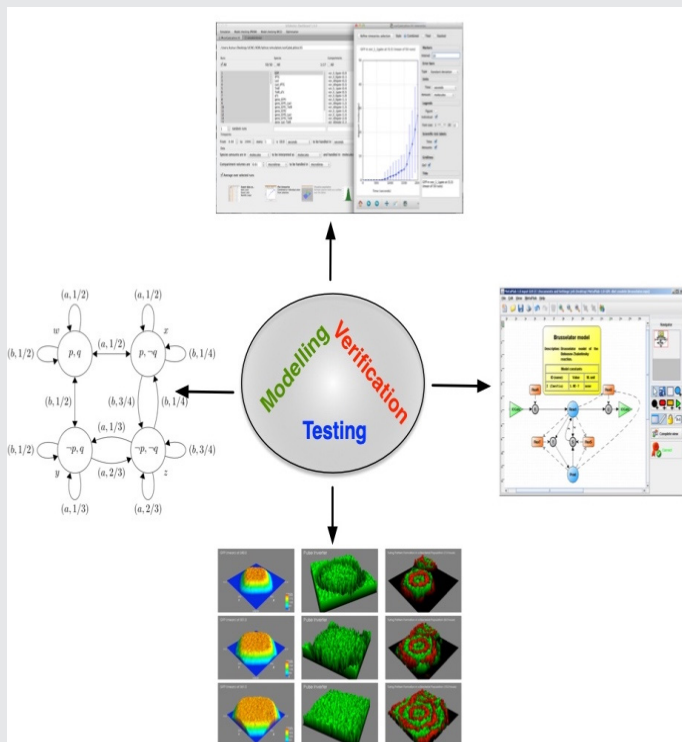
He actively publishes his results in leading high impact factor journals and conferences. He is currently an editor of the Journal of Membrane Computing, Springer. He regularly gives invited talks in international conferences and events, organises and acts as a committee member in conferences, and he is a reviewer for top-tier journals and research grants (RCUK). One of his knowledge exchange projects has been recently rated outstanding by the Innovate UK and shortlisted for a national award >>

## Current research interests:

- computational modelling and analysis
- machine learning and data-driven approaches
- high-performance computing
- applications to systems and synthetic biology, membrane computing, smart manufacturing and Industry 4.0

## Research projects:

- EPSRC: Light-weight Verification for Synthetic Biology – PI
- Innovate UK: Smart Network Traffic Monitoring – PI
- Innovate UK: KTP on Intelligent Manufacturing Systems – PI
- Access Innovation: Intelligent Network Services – PI
- Access Innovation: AI Enabled Feedback Analysis – PI
- Innovate UK: KTP on AI in Immigration Law – co-I



# Research and Knowledge Transfer

## Projects pipeline:

- Network to Address Research Gap for Bridge-Foundation Scour in Natural Streams and Bedforms, Jaan Pu
- Responsible AI and Distributed Ledger Technology for Trusted Decision Support in Health and Education, Daniel Neagu
- Extension to the SCORE project, Dhaval Thakker
- Ramboll UK, Dennis Lam
- SATURN Center, Fun Hu
- Rheological Characterisation of Biopolymer, Adrian Kelly
- Elcometer - 25876 manufacturing, Ben Whiteside



## University marks #DayOfReflection with commitment to tackling systemic inequality

As the nation prepares to pause and reflect on the sobering losses, strains and stresses caused by the Covid-19 pandemic, the University of Bradford has called for more to be done to tackle inequality.

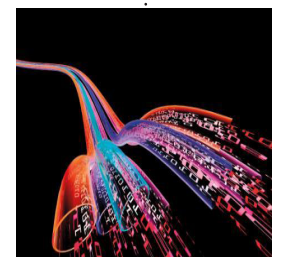
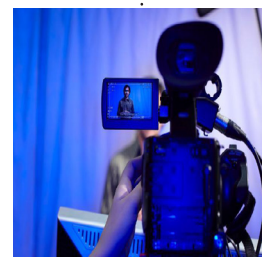
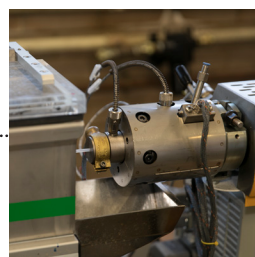
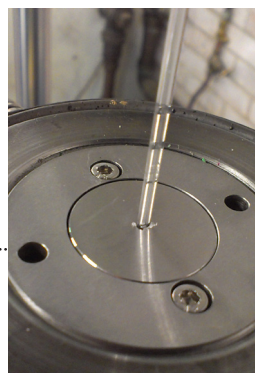
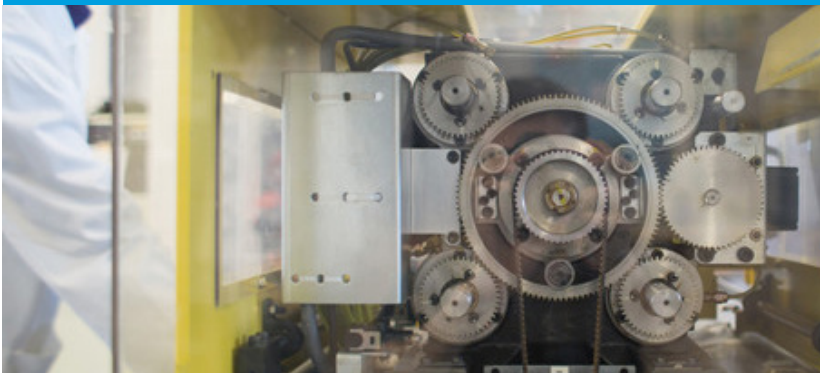
The University marked the national #DayOfReflection with a one minute silence at noon; its flag will be lowered to half-mast.

The University recently highlighted some of the work by staff and students during the pandemic and Vice-Chancellor Professor Shirley Congdon expressed her thanks for their contribution to the region's response.

Find out more [here](#)>>

## Open calls for funding:

- [APC 18: developing the UK's low carbon automotive capability](#), closing date: 5 May 2021 11:00 UK time
- [Transitioning towards zero emission vehicles: feasibility studies](#), closing date: 21 April 2021 11:00 UK time
- [Transitioning towards zero emission vehicles: CR&D](#), closing date: 21 April 2021 11:00 UK time
- [UKRI Trustworthy Autonomous Systems programme: responsibility](#), closing date: 13 May 2021 16:00 UK time



# Staff and Students' news

## Dr Elaine Brown Associate Dean EDI

Dr Elaine Brown has been appointed to the new role of Associate Dean (AD) for Equality Diversity and Inclusion (EDI) in the Faculty of Engineering and Informatics.

The intention is that Elaine will start her work on this important initiative formally at the start of April 2021.

Elaine is already an outstanding champion and advocate for EDI in the Faculty, the University and beyond, and led our recent Athena SWAN submission with Dr Carlton Reeve. As AD EDI, Elaine will play a key role leading on the implementation of the University's new EDI strategy with a strong focus on transformational and cultural change.



## SESAR JU invited the University of Bradford to present their 'cyber security research findings' to EU Aviation Scientific Community

SINAPSE, started in May 2020 and funded under the EU H2020 Single European Sky ATM Research Joint Undertaking (SJU), is delivered by a four partners consortium (ALTYS Technologies – project coordinator, Frequentis AG, University of Bradford, ENAIRE). The project aims to define an intelligent and secured aeronautical datalink communications network architecture design, based on the software defined networking (SDN) architecture concept augmented with AI to predict and prevent safety services outages, to optimize available network resources and to implement cybersecurity functions to protect the network against digital attacks.

As the technological pillar of Europe's ambitious Single European Sky (SES) initiative, SESAR coordinates and concentrates all EU research and development (R&D) activities in air traffic management. The SESAR JU was set up to manage this large scale and truly international public-private partnership.

The Bradford team, led by Prof. Fun Hu and supported by Dr Muhammad Ali and Dr Rameez Asif, is leading the Cybersecurity workpackage in SINAPSE. It investigates an AI-based network security management framework to detect network attacks over the SDN-based aeronautical communication networks using Machine Learning (ML) and to derive mitigation solutions to such attacks.

The team recently submitted the first report on the SINAPSE Intelligent Security Platform with a focus on assessing the applicability of the various available ML/AI methods to cyber security in aviation networks. The report received excellent feedback from the Technical Coherence Coordinator of SJU, Junchen Xu: "We find it a very well structured and very thorough scientific research report, and we are impressed by its high quality. We think it could be highly interesting for some members of the SESAR Community working on related topics, therefore we wonder if it would be possible to have an informal session where you or your colleagues from the Univ. of Bradford could present the report's main findings."

Mr Kanaan Abdo, the project coordinator said, "This report is an excellent project starter with a great boost. We really appreciate the cooperative and innovative spirit of Bradford University team, and we are looking forward to explore with them ATM transformation"

Prof. Fun Hu said, "I am really delighted by the excellent comments from the SJU. My researchers Dr Muhammad Ai and Dr Rameez Asif, had worked tirelessly and professionally on huge datasets in order to train and select the most suitable algorithms for further validation and testing in an in-house experimental platform at Bradford in the next phase of SINAPSE project."

The workshop will be held on the 16th April, 2021 and will be attended by experts from SESAR Communication, Navigation and Surveillance team, the SJU Scientific Committee, the International Federation of Air Traffic Safety Electronics Association and the European Union Aviation Safety Agency.



# Staff and Students' news

## Dr Kavian Cooke 'Results in Physics' publication

Kavian's paper 'Effects of materials positioning and tool rotational speed on metallurgical and mechanical properties of dissimilar modified friction stir clinching of AA5754-O and AA2024-T3 sheets' looked into the performance of the modified friction stir clinched and friction stir spot welded joints by investigating the impact of material flow. The positioning of harder Al alloy on the top of a soft Al alloy is thus recommended for the improvement of modified friction stir clinched joints.

You can find the full paper [here](#)>>



## Professor Crina Oltean-Dumbrava appointed as a member of the REF 2021 Panel

Crina has been appointed as a member of the [REF 2021 Main Panel B, Sub-panel 12: Engineering](#), as an Output Assessor.

Crina is the only academic at the University of Bradford to be part of a 2021 REF assessment panel. Her appointment supplements the appropriate breadth of expertise necessary for the assessment of all Higher Education Engineering REF submissions.

All REF panel chairs and members are appointed by the four UK funding bodies. For the sub-panels' members, nomination was required followed by the selection and appointment of the experts by the funding bodies.

## Dr Reeve hosts Industry Speaker - Simon Iwaniszak - Game Developer & Founder of Red Kite Games

Carlton hosted Simon, a 2006 graduate from MDT, for our Industry speaker on Friday 5 March.

Simon started his career in the games industry at Rockstar. In early 2012, Simon founded the multi award-winning development studio, Red Kite Games which was acquired by Sumo Digital in 2019. Red Kite takes on work-for-hire, co-development and original IP projects and has worked on games such as God of War III: Remastered, Two Point Hospital, Battletoads and the Mafia Trilogy: Definitive Editions.



# Staff and Students' news

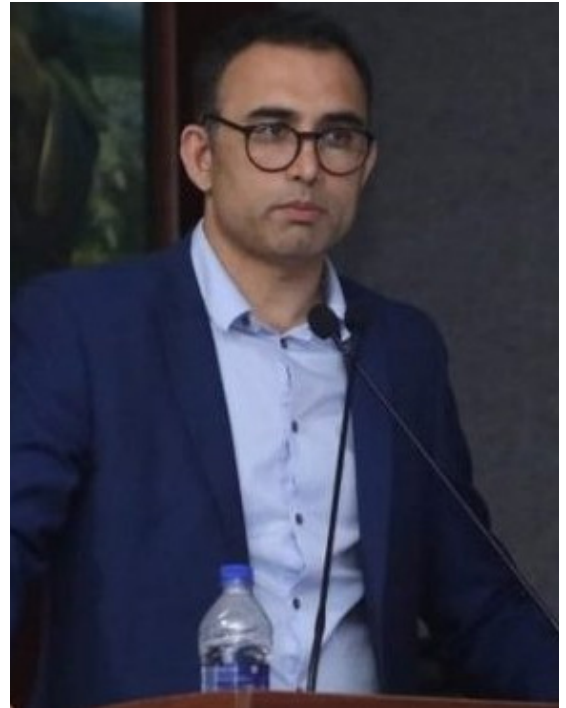
## Dr Dhaval Thakker Innovate UK KTP with AY&J Solicitors covered by Computer Weekly

Karl Flinders, Emea Content Editor of Computer Weekly covered our KTP project at the beginning of March 2021.

This artificial intelligence project strives to make legal advice affordable to the whole of society by developing a robot lawyer, which, if successful, will make legal advice affordable to people from all backgrounds, while revolutionising the legal sector.

Dhaval said that much of the early work done by lawyers in immigration cases could be taken over by AI: "When immigration applicants come to the company and need information before they sign up, they want to know which immigration category to sign up to and whether they have a case for this".

More [here>>](#)



## Dr Farshid Sefat new publications

Farshid's work in the field of Antibacterial hydrogel for wound healing application was published in the Journal of ACS Sustainable Chemistry and Engineering. The paper shows how the as-prepared hydrogel is preventing bacterial infection and promoting tissue regeneration during wound healing processes.

More [here>>](#)

Furthermore, his recent work related to Stem cells Efficacy in Improvement of Symptoms for Covid-19 was published in the Journal of Biotechnology and Bioengineering. Here was review in-vivo and clinical studies which have used different sources of mesenchymal stromal cell, secreted extracellular vesicles, and secretome to improve and treat symptoms of COVID-19 and similar lung diseases.

More [here>>](#)



# Staff and Students' news

## 4th Annual Innovative Engineering Research Conference (AIERC) 2021

The Annual Innovative Engineering Research Conference (AIERC) is organised by the Faculty of Engineering and Informatics at the University of Bradford and will take place virtually on April 23, 2021. The conference will adapt innovative approaches to take advantage of the flexibility that virtual medium allows, while maintaining the social and interactive elements of the physical medium.

AIERC aims to provide postgraduate students with a cross-functional platform to address critical issues and innovative solutions through practical discussions. It provides an opportunity for Masters and PhD students to showcase their research and to receive feedback on their new research ideas or results in an early stage of investigation.

More [here](#)>>

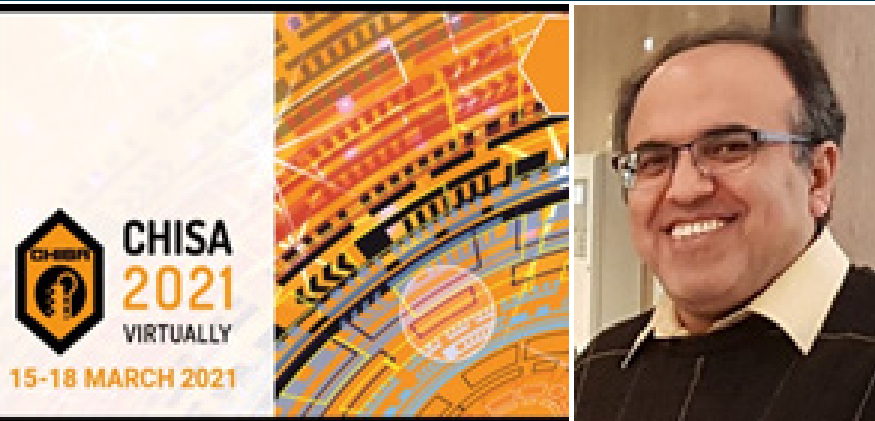


## Early Career Research Seminar (ECRF) and Shut-up and write session

Dr James (Rob) Innes introduced us to the 'Recycling of thermoset materials' Dr Cristina Tuinea-Bobe highlighted the key trends for 2021 to look out for.

The forum joined, after the standard ECRF meeting, a 'Shut-up and write' session where they concentrated on the development of presentation, research bids, reports and papers. The sessions will take place weekly on alternate Wednesdays and Fridays.

Our next meeting is on 21 April 2021, 12 noon, followed by a 'Shut-up and write' session.



## Dr Nejat Rahmanian outreach activity

Nejat chaired the 'Carbon Dioxide Economy' session at the International Congress of Chemical and Process Engineering, CHISA, and Czech Society of Chemical Engineering and Dechema (Chemical Engineering and Biotechnology in Germany), a virtual event on 15-18 March 2021. The attendees list comprised 498 experts from all the world including 315 from EU and the UK.

Nejat has also delivered an oral presentation on 'Impact of impurities on the formation of carbon dioxide hydrate' and two CO<sub>2</sub> related posters presentations (virtually). More information about this event can be found [here](#)>>

He also joined discussions on the Advisory Board of C4U project Advanced Carbon Capture for Steel Industries Integrated in CCUS Clusters on 2 March 2021. This is a €14 million project led by UCL and includes worldwide stakeholders from academia and industry.





# Staff and Students' news

## Enhancing Zoom – How Technical Support has brought 'broadcast quality' to webinars and meetings

Lockdown has led to a big rise in the number of campus events shifted from 'in-person' to digital. After the first lockdown ended, Mat Overton (Specialist Media Technician) set about improving their quality, which previously relied on basic webcams and a laptop. With the TV studio to hand, but a lack of students and staff to crew the Outside Broadcasting truck, he set up a temporary gallery that could be single-handedly operated for most events - running graphics, sound and vision mixing from one position. In 2020, live broadcasts were provided for MDT running UniDays 'Taster Tuesdays'; the University's 'Social Mobility Pledge' launch and University Court, hosted by the Vice-Chancellor; and a COVID-19 Research event presented by John Bridgeman. Our virtual open days and AEDs have also benefited from this. Multi-camera Zoom broadcast sessions on student services were hosted by Shirley Congdon and Nikki Pierce, with SU talks from the sabbatical officers.

In February, planning got underway for April's online 'Unify festival' and the Vice-Chancellor's awards. The COVID safety requirements make it difficult to fit enough participants in the studio for these events and it is a struggle to light the set effectively with social distancing in place. With the help of Lead Engineering Technician Mick Jagger and Engineering Technician (Apprentice) Dominic Burdett, the studio has undergone a major transformation, enlarging the lighting rig for better lamp positioning, and recabbling the power and data control circuits. Over the course of two weeks the existing lighting was removed, and light fittings and rails were modified. A new lighting desk was installed, with a complete overhaul of the control patching system. The team were able to bring a full set of existing 'soft' florescent lights from the old Media Museum TV studio back into use to create an evenly-illuminated news / magazine style set at one end of the studio for presentations. At the other end of the studio, a very flexible lighting rig for drama production / film shoots is based around 'hard' focusable lights. These are positioned on rolling rails and travel effortlessly from one end of the studio to the other without the need to repatch cables.

Thanks to the support of Property and Campus services, Mat installed 'wood-effect' flooring, which has been laid into the news set creating a more professional look than the working studio floor, and a reusable 'shiny black' studio floor for prestige events at the other end. Thanks also go to Lead Engineering Technician Ian Mackay for his decorating skills, painting the sets to compliment the floor. With completion on a tight deadline, Mat has already hosted this year's Harold Wilson Lecture, our March AED and the 'West Yorkshire Innovate Festival' with the new setup. He is now working on set construction of an 'old mill' interior for Unify festival events, and 'sparkly star' themed staging for the Vice Chancellor's Awards.

