



Newsletter: Issue 13, Winter 2022

Introduction

Welcome to 2022!

We hope you start your new year full of health and prosperity!

We can still stay safe from the extensive work of a variety of professionals and volunteers in advancing the answers to our international challenges in the 21st century. Despite the fact of recent 'Omicron' variant emerging globally to remind us of the start of the second year of the Covid-19 pandemic, there is a range of good news about pushing the progress in science and building better community such as the United Nation climate change conference or Conference of the Parties (COP26) pushing up the transition to a sustainable economy and society starting in 2021.

At the same time last time, with the great efforts, the Connected Everything (CE) and our wider community are communicating effectively about the necessity of digital manufacturing and how we work together to achieve better workplaces and open access for everyone during the "Interact Network", "Digital Manufacturing Week 2021" and "Talking to Industry" events.

We are also delighted to welcome those who recently joined us and congratulate those who have updated their works via new publications because each new or current individual is a powerful source of CE energy. Don't hesitate to let us know your positive outcomes or motivating stories!

In 2022, we maintain our clear purpose in professional and personal development. No matter what positions and which areas you are working in fundamental to digital manufacturing, the CE can offer you relevant networking opportunities, accessibility to our internal resources, financial support to carry on and publish your research.

As a gift to boost up the new year, we would like to share with you our upcoming events and fundings such as the "Connected Everything Conference 2022", "ECR Industrial Placement Programme", "Grant for hosting/organizing your event", etc.

Again, great appreciation to all members to make not only our CE but also the wider community better. Happy New Year to you all!

Tien Thuy Quach, Guest Editor



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Please click on the links given throughout the newsletter for further details.

Connected Everything Conference, Liverpool, 18 - 19th May 2022



Save the date for this year's annual conference, which will be taking place between 18th and 19th May 2022 in Liverpool. We're thrilled Connected Everything finally gets to go to Liverpool for a face to face conference, after having to move the 2020 and 2021 conferences online. Due to running online conferences for the last two years, we're pleased that Connected Everything will be able to subsidise the ticket price making the conference more accessible for all career stages

The conference programme is yet to be confirmed, but expect:

- Keynote presentations from leaders in digital manufacturing
- Outcomes from the horizon scanning activity on *Digital Manufacturing in 2050*
- Early Career Research (ECR) poster competition
- Evening entertainment
- And much much more

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everything.



The Network team aims to build a strong, vibrant, interdisciplinary community where funding can be effectively distributed to researchers. These individuals and research groups will then generate actionable economic and social science insights for the benefit of UK businesses. InterAct is also committed to supporting the UK manufacturing sector's efforts to achieve Net Zero by 2050 and the development of sustainable manufacturing practices.

The Network's first funding opportunity, a call for systematic review proposals, will be detailed in an [upcoming virtual event](#) on January 26th. They will be following this up with numerous further funding calls over the course of 2022 and the coming years.

To find out more about the network and subscribe to their mailing list for the latest news and events, [visit the InterAct website](#). Alternatively, you can also follow them on [LinkedIn](#) and [Twitter](#).



Digital Manufacturing Week 2021

At the end of last year Connected Everything returned to Digital Manufacturing 2021, although this time in person! The Connected Everything stand was part of the wider Made Smarter exhibition during the Smart Factory Expo. We were delighted to see a strong showing from Connected Everything present at the event. Nik Watson (Connected Everything co-investigator) and Ollie Fisher (Research Fellow and Knowledge Exchange Lead for Connected Everything) were joined by members from several of the feasibility study teams. We met many enthusiastic people, keen to find out more about our objectives and hear about the feasibility studies which were both the centrepiece of our exhibit, and which are at the heart of the network.



Connected Everything stand at Digital Manufacturing Week 2021



On the Thursday Nik Watson and Jill MacBryde from the InterAct Network lead a session introducing their respective networks and the recently launched Made Smarter Innovation Research Centres to the digital manufacturing community. Academic leads from three of the five centres were able to join to outline their centres vision and objectives vision to support the transformation of UK’s manufacturing capabilities. These included Linda Newnes from **People-Led Digitalisation Research Centre**, Andrea Johnston from Digital Medicines Manufacturing Research Centre and Iain Todd from **Materials Made Smarter Centre**. The other two centres are Research Centre for Connected Factories and Research Centre for Smart, Collaborative Industrial Robotics. We are excited to see the new research and innovation that will emerge from these centres! A session ended with a very insightful panel discussion between made smarter centres and network leads, chaired by Jan Godsell from InterAct, on the challenges and opportunities from academic and industrial collaborative research and what excites them most about the current digital revolution.

Talking to Industry - joint event with PETRAS

2022 has gotten off to a great start for Connected Everything with a successful joint event with PETRAS on “The Benefits & Challenges of Early Career Researchers Working with Industry”, with over 50 attendees joining throughout the day. We were very pleased to be able to host the event on the Connected Everything Gather Town space, which once again proved to spark engagement and enthusiasm with attendees. Jeremy Watson and Emilie Didier from PETRAS began the event with a truly beneficial interactive workshop explaining the key steps for working with industry from their perspectives. Debra Fearnshaw and Ollie Fisher from Connected Everything then introduced the Connected Everything Placement Scheme, which included a [video](#) presentation from Emma Glass outlining four placements on offer from BSI for ECRs. Expression of interests in these placements welcome now until **5pm on 7th February 2022** and should be sent to Debra.Fearnshaw@nottingham.ac.uk.



Following this was a panel session chaired by Julie McCann made up of industry experts who were asked for their thoughts and strategies for successful engage with industry. Panel members were [Ruth Kearney](#) of Nightingale AI, [Nektarios Georgalas](#) of BT, [John Goodenough](#) of ARM, [Ian Forrester](#) of BBC Research and Development and [Debra Fearnshaw](#) of Connected Everything.



Connected Everything Publications

Now Connected Everything II is entering its last year of funding, we thought it would be a good time to reflect on all the high-quality research that has emerged from the Connected Everything funding. We have pulled together a list of the current publications that we are aware of, but please get in touch with either debar.fearnshaw@nottingham.ac.uk or oliver.fisher@nottingham.ac.uk if you know of any additional publications not on this list. We're excited to see read about the innovated research from the Connected Everything II feasibility studies as they publish their findings!

Connected Everything 1 - Network Plus: Industrial Systems in the Digital Age

1. FISHER O, WATSON N, PORCU L, BACON D, RIGLEY M, GOMES R, (2021). Multiple target data-driven models to enable sustainable process manufacturing: An industrial bioprocess case study. *Journal of Cleaner Production*,
2. Gomaa M, Jabi W, Veliz Reyes A, Soebarto V, (2021). 3D printing system for earth-based construction: Case study of cob. *Automation in Construction*,
3. Alhumayani H, Gomaa M, Soebarto V, Jabi W, (2020). Environmental assessment of large-scale 3D printing in construction: A comparative study between cob and concrete. *Journal of Cleaner Production*,
4. Stanley-Marbell P, Alaghi A, Carbin M, Darulova E, Dolecek L, Gerstlauer A, Gillani G... Zufferey D. (2020). Exploiting Errors for Efficiency A Survey from Circuits to Applications. *ACM Computing Surveys*,
5. Wang Y, Willis S, Tsoutsouras V, Stanley-Marbell P. (2019). Deriving Equations from Sensor Data Using Dimensional Function Synthesis. *ACM Transactions on Embedded Computing Systems*,
6. Meech J, Stanley-Marbell P. (2021). Efficient Programmable Random Variate Generation Accelerator From Sensor Noise. *IEEE Embedded Systems Letters*,
7. Stanley-Marbell P, Rinard M. (2020). Warp: A Hardware Platform for Efficient Multimodal Sensing With Adaptive Approximation. *IEEE Micro*,
8. Walker D, McCluskey T, Yu G, Petrovic S, Li H. (2019). Fully automating fine-optics manufacture - why so tough, and what are we doing?. *Journal of the European Optical Society-Rapid Publications*,
9. Veliz Reyes A, Jabi W, Gomaa M, Chatzivasileiadi A, Ahmad L, Wardhana N, (2019). Negotiated matter: a robotic exploration of craft-driven innovation. *Architectural Science Review*,
10. Charnley F, Tiwari D, Hutabarat W, Moreno M, Okorie O, Tiwari A, (2019). Simulation to Enable a Data-Driven Circular Economy. *Sustainability*,



11. Easson M, Edwards J, Mao N, Carr C, Marshall D, Qu J..... Condon B, (2018). Structure/Function Analysis of Nonwoven Cotton Topsheet Fabrics: Multi-Fiber Blending Effects on Fluid Handling and Fabric Handle Mechanics. *Materials*,
12. Gomaa M, Carfrae J, Goodhew S, Jabi W, Veliz Reyes A, (2019). Thermal performance exploration of 3D printed cob. *Architectural Science Review*,
13. Okaro I, Jayasinghe S, Sutcliffe C, Black K, Paoletti P, Green P, (2019). Automatic fault detection for laser powder-bed fusion using semi-supervised machine learning. *Additive Manufacturing*,
14. Walker D, Yu G, Beaucamp A, Bibby M, Li H, McCluskey L..... Reynolds C, (2017). More steps towards process automation for optical fabrication.

Connected Everything 2 - Accelerating Digital Manufacturing Research Collaboration and Innovation

1. Tlegenov Y, Hawkrigde G, McFarlane D, Parlikad A, Reyner N, Thorne A, (2020). Low Cost Monitoring on a Shoestring: Solutions for Digital Manufacturing. *IFAC-PapersOnLine*,
2. Watson N, Bowler A, Rady A, Fisher O, Simeone A, Escrig J..... Adedeji A, (2021). Intelligent Sensors for Sustainable Food and Drink Manufacturing. *Frontiers in Sustainable Food Systems*,

Members' News

SPRITE+ Top Tips series

The SPRITE+ Top Tips series aims to provide useful practical advice to equip early career researchers with the skills and knowledge to deliver high quality impactful research in their future careers. We are delighted to announce three new sessions for 2022:

- Managing conflicting demands - 10.00-11.00, 23 February 2022, online, with Prof Mark Elliot.
- Being an effective PI (Principal Investigator) - 10.00-11.00, 21 March 2022, online, with Prof Bill Lee.

See more information and register [here](#).

eFutures Network+ events

eFutures Network+ has two upcoming online events, both part of their series on Electronics for Sustainable Societies.

- The first, on 25th January (11am-1pm) is "The Hope for Hydrogen". Contributors include Prof [Juliana Early](#), Dr [Sile Brennan](#) and Dr [Rory Monaghan](#). Registration [here](#).



- This will be followed on 3rd February (11am-1pm), by “Making Electronics Sustainable”, chaired by Prof [David Cumming](#) and with contributions from Prof [Elvira Fortunato](#), Dr [Roland Hischer](#), Dr [Maria Smolander](#), [Garam Bel](#), and Dr [Gerardo Hernandez-Sosa](#). Registration [here](#).

Making the most of attending a conference, Tien Thuy Quach

Tien Thuy Quach – 3rd-year PhD student at School of Pharmacy, the University of Nottingham reflected her attendance the 41st Assembly of European Advanced Materials Congress (EMAC2021), with help from the Researcher Academy’s Online Conference Fund. She shared some tips for both application and participation (including pre-, during, and post-conference) that could help the new attendees to make the most from their conference.

- Read Tien’s blog [here](#)

12th Annual European Decision Sciences Institute (EDSI) Conference

The theme of this year’s EDSI conference is ‘Decision Sciences in a Disrupted World’. The conference has an **active call for papers** and are seeking contributions from across the full spectrum of disciplines relevant to the decision sciences, including analysis, modelling, and qualitative studies. Abstract submission deadline is 7th February 2022. Link for more details [here](#).

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