RESPONSIBLE DESIGN FOR ADDITIVE MANUFACTURING

Design for AM NETWORK

UKRI Engineering and Physical Sciences Research Council

About the DfAM Network

The purpose of the EPSRC design for AM network is to connect the wider UK design for AM academic research community alongside those in industry that are experienced practitioners of additive manufacturing technologies, such that we can benefit from sharing knowledge, developing research themes and working collaboratively to ensure that design for AM is given the best platform possible.

By bringing together the design for AM community, the network aims to reach out to the widest possible audience that might benefit from design for AM research; identify future research directions and facilitate larger and more adventurous research collaborations.

About the Event

Responsible design is an essential and emerging field that covers a range of multidisciplinary themes. This free one day event focuses on the responsible design for additive manufacturing (DfAM) and will explore current perspectives from the wider 3D printing community, from grass roots to large scale initiatives. The event will showcase the positive impact AM is having on our world and provide a forum to strategise the future agenda of responsible DfAM.

This EPSRC design for additive manufacturing network event brings together theme leaders from Loughborough University (UK) and Western University (Canada) to host a programme of talks from academic, industry and maker community speakers, highlighting areas in sustainability, open source innovation, equality and inclusion, and socially responsible DfAM.

Time	Speaker	Talk title
10:00am	Mazher Mohammed/Patrick Pradel	Welcome
10:10am	Michael Hunt	UK SME Perspective on Sustainable 3D Printing
10:40am	Fabio Cruz-Sanchez	Sustainable distributed recycling via additive manufacturing: from technical to systemic challenge
11:10am		Break
11:20am	Joshua Pearce	The Rise of OS AM Scientific Hardwear & Career Success
11:50am	Samantha Snabes	Thinking Big, Printing Huge and Keeping it Open Source
12:20pm		Lunch
13:10pm	Robert Higham	Introducing the next DfAM Event
13:20pm	Adrian Bowyer	The Mass Proliferation of Open-Source Hardwear in AM & the Future of Open-Source Innovation
14:00pm	Sarah Goehrke	Perspective & Challenges for Women in AM/DfAM
14:30pm	Louis Masters/Piyapat Jameekornku	Competition results
14:40pm		Breakout session
15:40pm		Break
15:50pm	Ian Falconer	Tales from the Cornish Coast - Scaling and Deployment for Responsible Impact
16:20pm	Andrew Lamb	DfAM & Humanitarian Engineering, Ethics and Emergencies
16:50pm	Victoria Jaqua	Moving Forward with Open Source DfAM for Medical Humanitarian Aid
17:20pm	Mazher Mohammed/Allan Rennie	Closing remarks

Key Research Theme Leaders

Mazher Mohammed
Loughborough University

Dr Mazher Iqbal Mohammed is a Senior Lecturer in Digital Fabrication, Director of Equity, Diversity and Inclusion and part of the Digital Design and Fabrication Research Group within the School of Design and Creative Arts at Loughborough University. He has worked in several prestigious academic institutes across both the UK and Australia, where he has developed multidisciplinary skills working in digital/product design, biomedical engineering, advanced manufacturing, material sciences and chemistry.

Dr Mohammed's research interests focus on Design for Health and Wellbeing, working at the intersection of healthcare, sustainability and equitable design to advance solutions aimed at positively impacting human development and longevity. He is particularly interested in the opportunities found from disruptive technologies such as additive manufacturing, computer aided design, biofabrication and data driven processes to develop innovative and practical solutions in fields ranging across healthcare, humanitarian technologies, closed-loop sustainable manufacturing and Industry 4.0

Presenters

Michael Hunt
3D Printing Cornwall
"*UK SME Perspective on Sustainable 3D Printing*"

Michael is a 3D Printing Bureau Manager/ 3D Printing Consultant from Cornwall in the southwest, specialising in helping customers produce final production parts and assist them in coming to market using 3DAM.
Using a range of Recycled Materials in their systems which comes from local sources, they aim to provide a local source of products, which materials are locally recycled and locally 3D Printed, overall reducing C02 via reducing logistics and boosting local economy.

Local Recycled Plastic/Waste Accounts for 60-80% of their 3D Printing Facilities Turnover.

Presenter

Fabio Cruz-Sanchez
University of Lorraine, France
"*Sustainable distributed recycling via additive manufacturing: from technical to systemic challenge*"

Fabio is research associate at the ERPI Laboratory of the Université de Lorraine - France.
He works in the distributed recycling via additive manufacturing (DRAM) as a possible socio-technical transition towards a sustainable manufacturing approach in a post-growth future alternative.
He works specifically at the research platform Lorraine Fab Living Lab (LF2L) in the analysis and implementation of distributed recycling through the Green Fablab project. The technical, logistical and system characterizations are part of the scope in the validation of the DRAM.

Presenter/Key Theme Leader

Joshua Pearce
Western University, Canada
"*The Rise of OS AM Scientific Hardwear & Career Success*"

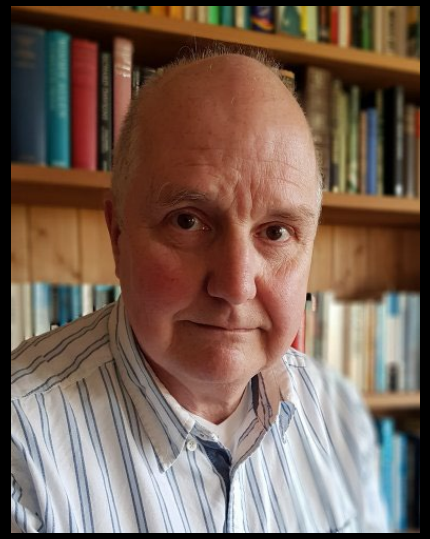
Joshua M. Pearce is the John M. Thompson Chair in Information Technology and Innovation at the Thompson Centre for Engineering Leadership & Innovation. He holds appointments at Ivey Business School and the Department of Electrical & Computer Engineering at Western University in Canada. He runs the Free Appropriate Sustainability Technology (FAST) research group. His research concentrates on the use of open source appropriate technology (OSAT) to find collaborative solutions to problems in sustainability and to reduce poverty. His research spans areas of engineering of solar photovoltaic technology, open hardware, and distributed recycling and additive manufacturing (DRAM) using RepRap 3-D printing, but also includes policy and economics.

Presenter

Samantha Snabes
RE3D
“Thinking Big, Printing Huge and Keeping it Open Source”

Samantha Snabes is a Co-founder and a Catalyst for **re:3D** where she facilitates connections between others printing at the human-scale and/or using recycled materials to access locally driven manufacturing in 50+ countries. As a serial entrepreneur, she currently volunteers as the Global Chair of the **IEEE Entrepreneurship** Steering Committee. Previously, she served as the Social Entrepreneur in Residence for the **NASA** HQ and Deputy Strategist supporting the NASA Johnson Space Center’s Space Life Sciences Directorate after selling a start-up for a DARPA-funded, co-patented tissue culture device. Samantha holds a BS in Biology, BA degrees in International Relations & Hispanic Studies, a MBA with concentrations in Supply Chain Management & International Relations.

Presenter



Adrian Bowyer
RepRAP
"*The Mass Proliferation of Open-Source Hardwear in AM & the Future of Open-Source Innovation*"

Adrian Bowyer did a first degree in mechanical engineering at Imperial College and then did a PhD in tribology there. He then became an academic at Bath University, first in the Mathematics Department, and later in Engineering. His main areas of research are geometric computing (he is one of the creators of the Bowyer-Watson algorithm for Voronoi diagrams) and self-copying and self-assembly in engineering.
He is the originator of the RepRap Project – a project that has created humanity's first general purpose self-replicating manufacturing machine. In 2017 he received the 3D Printing Industry Outstanding Contribution to 3D Printing Award and later was inducted into the 3D Printing Hall of Fame. In the New Year's Honours List for 2019 Her Majesty the Queen awarded him an MBE for services to 3D printing.

Presenter

Sarah Goehrke
DEI Initiative for Women in 3D Printing
"*Perspective & Challenges for Women in AM/DfAM*"

Sarah Goehrke is the Founder of AM-specific contract services company Additive Integrity; serves on the Board of Directors and as the Head of DEI at Women in 3D Printing; and sits on the Board of Advisors for the Additive Manufacturing Coalition. She focuses in the additive manufacturing industry on advances in diversity, sustainability, and ecosystem positioning with a heightened focus on messaging.
Sarah has been a leader in the 3D printing industry since 2014, previously serving as the Managing Editor of Fabbaloo; Editor-in-Chief of 3DPrint.com; and Senior Director, Strategic Communications and Ecosystems at ultrafast 3D printing leader Nexa3D. Through Additive Integrity, she has worked with more than two dozen companies across the industry, contributed to publications including Forbes.com, and keynoted across three continents. She is deeply and actively passionate about advancing diversity, equity, and inclusion in the 3D printing industry. Sarah holds Bachelor's degrees in English and Theatre from Muskingum College, as well as a certificate in Diversity & Inclusion for HR from Cornell University.

Presenter

Ian Falconer
Fishy Filaments
"*Tales from the Cornish Coast - Scaling and Deployment for Responsible Impact*"

Ian is an engineer with almost 3 decades of experience working in global raw materials supply chains and infrastructure. In 2017 he launched Fishy Filaments as a means to develop and commercialise a fishing net recycling system that yields a very high quality recyclate with potential for immediate local use with zero intermediate processing.

His Patent Pending technologies are designed for deployment to harbours around the world and to provide a self-funding waste management system for ~20% of global fishing by value and tonnage. Carbon efficiency is a core driver for his technological ethos. Within Fishy Filaments Ltd local social and environmental equity is co-developed with global climate equity with 3DP as a shared vector for both localised and globalised development.

Presenter

Andrew Lamb
Field Ready
"*DfAM & Humanitarian Engineering, Ethics and Emergencies*"

Andrew Lamb is the Innovation Lead on the global team of Field Ready, a disaster relief organisation that is transforming aid logistics by helping make aid supplies in the field. Andrew commissioned the development of a Code of Ethics for Humanitarian Making and has been closely engaged with the global maker movement. Andrew is the chair of the Internet of Production Alliance which is developing infrastructures for decentralised manufacturing such as the Open Know-How and Open Know-Where standards. A systems and information engineer, Andrew is on the board of Helpful Engineering, Appropedia and FabLab Winam in Kenya. Based near Heathrow.

Presenter

Victoria Jaqua
OSMS Open-Source Medical Supplies
"Moving Forward with Open Source DfAM for Medical Humanitarian Aid"

Victoria F. Jaqua is a registered radiology technologist specializing in cardiac catheterization procedures. When not working her clinical job, she is the Medical Community Lead for Open Source Medical Supplies (OSMS), where she supports the maker-medical connection, especially for traditionally underserved populations and crisis response efforts. She is a co-author on Design | Make | Protect, an OSMS and Nation of Makers (NOM) white paper documenting the open source and maker-made PPE accomplishments of 2020. This year, she is a Project Manager for Glia.org, overseeing the testing and manufacturing ecosystem being built around their open source tourniquet.

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