

Future Devices & Technologies SIG**'The future of music'**

22 February 2022

The Future Devices & Technologies SIG is championed by Graham Anderson of **Beko**, Nadia Aziz of **Unbounded Future**, Esther Ford of **Marks & Clerk**, Zahid Ghadialy of **Parallel Wireless UK & EMEA**, David Roberts of **Jaboo Software**, Charles Sturman of **Huawei Technologies Research & Development (UK)**

Venue: The Bradfield Centre, 184 Cambridge Science Park Rd, Milton, Cambridge CB4 0GA

AGENDA

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| 13:00 | Registration and networking with refreshments |
| 13:45 | CW welcome |
| 13:50 | Welcome from event sponsor, Charles Sturman, Senior Director International Marketing, Huawei Technologies R&D UK Ltd |
| 13:55 | Introduction to Future Devices & Technologies SIG and scene-setting: Charles Sturman, SIG Champion and Senior Director International Marketing, Huawei Technologies R&D UK Ltd |
| 14:00 | Session to be chaired by Esther Ford, Future Devices & Technologies SIG Champion
'Audio analysis, synthesis and digital instruments'
Douglas Nunn, Senior Lecturer in Audio and Music Technology, Anglia Ruskin University
This talk will give an overview of current trends and research areas in music technology, including music transcription, music information retrieval, sound synthesis and instrument design. |
| 14:25 | Q&A |
| 14:30 | 'Evolution of Immersive Music'
Mike Hollier, VP Technology Incubation, Dolby Laboratories
This talk discusses the technology advances and evolution of the artist/creator which is driving immersive music to become mainstream. At the Pro end of the market we see a new generation of immersive audio for movies and music, while the new creator economy is also benefiting from AI content creation tools and is experimenting with audio in virtual worlds. |
| 14:55 | Q&A |
| 15:00 | Refreshments and networking
Session to be chaired by Charles Sturman, Future Devices & Technologies SIG Champion |
| 15:30 | 'Adaptive music - musicology + technology = soundtrack for your life'
Philip Sheppard, CEO & Founder, LifeScore
What if your music could react in real-time to you? For the last 500 years, composers have been dreaming of non-linear music. The inventor of Siri, a sketch on a cafe menu and Abbey Road Studios might have found an answer... |
| 15:55 | Q&A |

16:00 'Creative AI: how generative systems will affect the future of music?'
Philippe Pasquier, Professor at School of Interactive Arts and Technology (SIAT), Simon Fraser University, Vancouver; Associate Dean Academic of the Faculty of Communication, Arts and Technology (FCAT); Director, Metacreation Lab for Creative AI.

Since 2008, the Metacreation Lab for Creative Artificial Intelligence focusses on the design, deployment, and evaluation of generative systems, which partially or completely automate creative tasks. We will define, motivate, and exemplify these new developments of AI and machine learning that will affect the future of the music industry. We will present examples of augmentation and automation using music AI algorithms for computer-assisted composition, computer-assisted sound design, game music, and sound synthesis. We will discuss industrial deployments and applications, as well as the potential ethical implications of these systems.

16:25 Q&A

16:30 Panel session chaired by **Charles Sturman, Future Devices & Technologies SIG Champion**

16:50 **Networking, beer and pizza sponsored by Huawei**

18:30 **Event closes**

With the permission of the speakers, presentations will be loaded to the CW website following the event

Profile of organisers

Cambridge Wireless (CW)

CW is the leading international community for companies involved in the research, development and application of wireless and mobile, internet, semiconductor and software technologies. With over 400 members from major network operators and device manufacturers to innovative start-ups and universities, CW stimulates debate and collaboration, harnesses and shares knowledge, and helps to build connections between academia and industry. CW's 19 Special Interest Groups (SIGs) provide its members with a dynamic forum where they can network with their peers, track the latest technology trends and business developments and position their organisations in key market sectors. CW also organises major conferences and start-up competitions along with other high-quality industry networking events and dinners. With headquarters at the heart of Cambridge, UK, CW partners with other international industry clusters and organisations to extend its reach and remain at the forefront of global developments and business opportunities. www.cambridgewireless.co.uk

Profile of sponsor

Huawei Technologies R & D UK

We are a leading R&D organisation in the UK with centres in Cambridge, Bristol, Edinburgh, Ipswich and London. We seek to collaborate on an open innovation basis, sharing ideas and helping each other to be successful in a sustainable way. We partner with universities to create breakthrough technologies and want to inspire younger generations to pursue a STEM career and therefore want to reach out to further education and primary education. Crucial to our business is our involvement in standardisation where, together with partners, competitors and customers, we define the technologies for the future, the basis for new products, application and services. With a presence in more than 170 countries Huawei is a gateway to a global market. Therefore Huawei also works with smaller innovative companies, acting as suppliers, partners and collaborators to unlock new possibilities. Network organisations play a crucial role in establishing such collaborations and making them work and CW is a very important part of our ecosystem. www.huawei.com

Profile of host

The Bradfield Centre

The Bradfield Centre is the premier Tech Hub serving the Cambridge technology cluster and the wider East of England region. We scale Tech startups, support Corporate innovation strategies, and help students engage with Tech & Entrepreneurship. www.bradfieldcentre.com

Profile of SIG Champions

Graham Anderson, Beko

Graham Anderson is Senior Specialist at Beko R&D, with research interests focused around novel sensors, data analytics, and energy storage/harvesting. Previously he worked as a Senior Scientist at Cambridge Display Technology working on the development of ink jet printed OLED displays and organic thermoelectric generators. Graham has a PhD from Leeds University in spintronics. www.beko.co.uk

Nadia Aziz, Unbounded Future

Nadia is an emerging technology consultant with heavy focus on AR/VR & new technology areas. She has a broad experience over 12 years as an engineer, programmer, consultant, advisor, speaker, IP scouting and has a passion for emerging technologies and its impact on business transformation. She has also helped in mergers & acquisition programmes in France specifically in the engineering areas. Nadia Aziz was recently an Innovation leader for Emerging Technologies at NTT DATA where she led the development of innovation applications in Augmented (AR) & Virtual Reality (VR) technologies, AI, sensors and wearables. She is active in the Digital Health community and was a co-producer for the GIANT Health Event in 2018.

Esther Ford, Marks & Clerk

Esther obtained an MEng in Electronic Engineering after studying at the University of Kent and the Technische Hochschule Darmstadt. Having been awarded an Engineering Prize from the Royal Academy of Engineering, she went on to obtain a PhD in Microelectronics from the University of Cambridge. During her research, Esther developed a nanodot array single electron device with controlled threshold voltage at high temperatures. She also presented the Institute of Engineering and Technology (IET) Faraday Lecture "The Digital World", which was delivered to live audiences throughout the UK and broadcast over Europe and North America, reaching an audience of 20,000. After completing her PhD, Esther worked as a research engineer in Nortel Networks and subsequently in a telecommunications design consultancy. She joined the patent profession in 2004 and has extensive experience in managing international patent portfolios. She also has significant experience representing clients at the EPO in oppositions and appeals. Esther joined Marks & Clerk in 2008, and in 2011 enjoyed a secondment as an in-house attorney for a valued client in the Oil/Gas industry. Her recent focus has been in the fields of Internet Service Provision, Oil/Gas recovery, Power Electronics, and the Internet of Things. Esther has been recognised as a rising star by Managing Intellectual Property, IP Stars, 2017. www.marks-clerk.com

Zahid Ghadiyaly, Parallel Wireless UK & EMEA @zahidtg

Zahid Ghadiyaly is a Senior Director with a fast-moving and innovative US-based young company called Parallel Wireless (PW) that is on a mission to make deployment of any cellular infrastructure as easy and as cost-effective as Wi-Fi. With an extensive experience of over 20 years in the telecom industry as an engineer, programmer, analyst, researcher, architect, trainer, product manager and technical marketer, he is a technologist with a deep understanding of architecting world-class mobile products and solutions. Zahid is currently 'Future Devices & Technologies' SIG champion. He has also previously been a 'Small Cell SIG' and 'Smart & Intelligent Cities SIG' champion. He is also a Non-Executive Director of eXplanoTech. In his spare time he blogs at 3G4G and you can also catch him on Twitter at [@zahidtg](https://twitter.com/zahidtg) www.parallelwireless.com

Dave Roberts, Jaboo Software

David is a technology leader with over 25 years' experience working in the hi-tech arena. He has recently completed a successful project for ghd in conjunction with CW where he carried out the role of System Architect and facilitator. Prior to this he worked in the C-IoT space where he ran a multi-national R&D department that developed silicon and software designed for the burgeoning IoT market. He was also responsible for driving an agile transformation programme and assisting the organisation with their integration into a large Chinese multi-national telecoms company. Having started his career as a software developer working for BT and Acorn Computers, he went on to hold senior roles in a number of world-class organisations such as Symbian, Cambridge University and Citrix in the areas of Software Development, Project Management, Product Management, Research, Consultancy and Architecture. His background includes leading and developing teams involved in the creation of large-scale integrated hardware and software products, web-based services and CE devices. He is also highly experienced in large-scale agile development practices, agile coaching/transformation and creating and executing strategies for increasing the efficiency and effectiveness of organisations.

Charles Sturman, HiSilicon (Huawei Technologies Ltd)

Charles is responsible for International Marketing for HiSilicon (Huawei's chipset business). Based in Cambridge UK, with responsibility for product strategy, go-to-market and business development in IoT, edge and smart devices

fields. Prior to this he lead u-blox' activities in the fast moving consumer IoT segment (wearables, smart-home and entertainment) following the acquisition of the ARM Software Radio spin-out Cognovo, where we has founder and executive VP Sales & Marketing. Charles has held various positions in system design, business development and product marketing within Acorn Computers, TTPCom, Motorola and ARM. www.hisilicon.com www.huawei.com

Profile of speakers

Mike Hollier, Dolby Labs

Dr Mike Hollier is an accomplished international executive with a strong track-record in corporate-venturing, start-up, founder-sales, multiple operational roles, and board-service. His experience embraces start-up, large company dynamics, and organizational scaling. He is driven and entrepreneurial and has led the creation of transformational new products and services supported by extensive new intellectual property. Mike's passion is matching significant industry challenges with bleeding-edge innovation. Commercial success has resulted from building world class teams across multiple countries, disciplines, and business models. Through the 1990's Mike worked at BT Labs (UK) creating a new generation of perception-based performance management tools for communications over IP-networks. From 2000 he led Psytechnics, an international VC backed startup, through funding, pivots, and exit. From 2010 to 2019 he was based in Silicon Valley (USA) working for Dolby Labs on adjacent opportunities. He has also held advisory roles for AI and SDN start-ups in Silicon Valley. Mike currently leads Technology Incubation for Dolby. www.dolby.com

Douglas Nunn, ARU

Douglas Nunn is an academic, composer and visual artist. His research interests include polyphonic music transcription, lossless compression, sound analysis and synthesis, live audiovisual performance and vector graphics. www.aru.ac.uk

Philippe Pasquier, Simon Fraser University; Faculty of Communication, Arts and Technology (FCAT); Metacreation Lab for Creative AI

Philippe Pasquier is a professor at Simon Fraser University's School for Interactive Arts and Technology, where he directs the Metacreation Lab for Creative AI. Philippe leads a research-creation program around generative systems for creative tasks. As such, he is a scientist specialized in artificial intelligence, a multidisciplinary media artist, an educator, and a community builder. His contributions range from theoretical research on generative systems, computer-assisted creativity, multi-agent systems, machine learning, affective computing, and evaluation methodologies. This work is applied in the creative software industry as well as through artistic practice in computer music, interactive and generative art.

Philippe's artistic work has been shown in prominent venues on six continents, including at Ars Electronica (Austria), Centre Pompidou (France), Les Bains Numériques (France), Eastern Block (Canada), Earzoom festival (Slovenia), GMEA (France), IRCAM (France), ISEA2012 (Turkey), ISEA2014 (Dubai), ISEA2016 (Honk Kong), ISEA2017 (Columbia), Musée d'Art Contemporain de Montréal (Canada), Mutek Festival (Canada), Plus One Gallery (USA), Space One (Korea), Sydney Biennale (Australia), Vooruit (Belgium), ZKM (Germany), ICST (Switzerland), and Akbank (Turkey). The Metacreation Lab research is being applied widely by the likes of Teenage Engineering, Steinberg, Generate, Elias, Schocap, Spliqz, and Microsoft.

Along with the Metacreation Lab fellows, Philippe has co-authored over 180 peer-reviewed contributions presented in the most rigorous scientific venues. His MOOC class on Generative Art and Computational Creativity on the Kadenze platform has served thousands. To further advance the Creative AI community, Philippe instigated and chaired the International Workshop on Musical Metacreation (MUME) and the MUME concerts series, which led to the creation of the Joint Conference on AI Music Creativity. He also founded the International ACM Conference on Movement and Computation (MOCO), and was the director of the Vancouver edition of the International Symposium on Electronic Arts (ISEA2015). Philippe is a Senior Program Committee member of the Joint International Conference on Artificial Intelligence (IJCAI).

Philippe's projects are finding industrial applications in the creative industry at large and have gained support and recognition from more than 20 scientific or cultural institutions including the Natural Sciences and Engineering Research Council of Canada (NSERC), the Social Sciences and Humanities Research Council of Canada (SSHRC),

MITACS, the Canadian Council for the Arts (CCA), the Australian Research Council and the Australian Council for the Arts, the French Ministère de la Culture et de la Communication, and the European Community.

<http://www.sfu.ca/pasquier> | <http://www.Metacreation.net>
<http://MusicalMetacreation.org> | <http://MovementComputing.org/>

Philip Sheppard, CEO & Founder, LifeScore

Philip Sheppard is CEO of LifeScore. He is also an award-winning film, television and video game composer, producer, virtuoso cellist, and inventor. LifeScore has been cited as the 'world's leading adaptive music company' – and represents a completely original way to experience music. Its endlessly adaptive platform creates unique, real-time soundtracks for some of the world's leading brands. From the iconic Abbey Road Studios in London, they work with world-class musicians and composers to record and compose musical building blocks. That musical raw material is then processed by a proprietary AI platform to generate soundtracks that adapt to the listener's environment and inputs, creating an authentic and interactive musical experience that is unique on every engagement. LifeScore is unique in the quality of its musical building blocks, its methods for representing and applying compositional ideas, and its ability to adapt to the listener's environment and inputs in real-time with music that sounds as if it were written for that purpose. The result is the best of human and machine contributions: human professionals create music that is of the highest quality recorded music, and the machine assembles it into endlessly varying renditions that can be unique on every listen and play for long durations without sounding repetitive or synthetic.

Philip has produced many large scale and high stakes projects including the 2008 Olympics Closing Ceremonies, all of the world's national anthems for the 2012 Olympics, the Rugby World Cup, the Tour de France, The Commonwealth Games and the Montreal Grand Prix. He has composed more than 65 film, television, gaming and theatrical scores and has had 11 films premiere at The Sundance Film Festival in the last 10 years. Philip regularly performs with Odesza, Pretty Lights and UNKLE and has been a guest artist for music legends such as, Scott Walker, Queens of the Stone Age, Grace Jones, Jimmy Page, Jeff Buckley, David Bowie, Sia, Suzanne Vega and Jarvis Cocker.

He regularly works as a creative consultant for large enterprises including, Google, EY, Deloitte, Kering, Kyu Collective, IDEO, and TTI Vanguard, specialising in innovative thinking and communication. Philip is a member of the Academy of Motion Pictures (Oscars), and a member of the Emmys Academy. He was honoured with BBC's Music Production of the Year and was recently named as one of Origin Magazine's "Top 100 Creatives in the U.S." He is also the recipient of a RAM Fellowship, a lifetime achievement award from the Royal Academy of Music for his services to music and education. www.lifescoremusic.com