University of BRISTOL

Smart Internet Lab

SMART:2023

Catalysing Future Networks Research in the UK

28th - 29th June 2023

Great Hall, Wills Memorial Building
Queen's Road, Bristol, BS8 1RJ, UK

About Smart Internet Lab

The Smart Internet Lab at the University of Bristol is one of the UK's most renowned Information and Communications Technology (ICT) research centres which addresses grand societal and industrial challenges.

Our 200 experts on 5G radio/wireless, optical communications and networks challenge the complexity of tomorrow's world by fusing research expertise and innovation in a range of research areas such as: IoT, 5G & Beyond, Future Transport Networks, Smart Cities, Autonomous Networks, Machine Learning, Artificial Intelligence, Network, Convergence, Mobile Edge Computing and Network Softwarization.

Our unique offering across optical, wireless, IoT and cloud technologies enable us to bring together end-to-end network design and optimisation and impact regional, national and global ICT innovations.

SMART:2023

Catalysing Future Networks Research in the UK

This 2-day event will bring together the Smart Internet Lab community and leading industrial experts to discuss future visions in telecommunications research. Through a series of keynote talks, panel sessions & workshops, the conference will cover topics in areas such as:

- Future Mobile Networks (6G)
- Optical Comms & Quantum
- Network Convergence
- Quantum Computing
- Quantum Networking
- AI/ML for Networks
- Network security
- Sustainability

Conference hashtag:

#smart2023

Programme: Day 1

Wednesday 28 June 2023
Themes: **6G & Future Mobile Networks**

Time	Session
9:00 – 9:30	Registration & Arrival, tea/coffee
Welcome	
9:30 – 9:45	**Professor Evelyn Welch**, Vice Chancellor, University of Bristol
Opening Talk	
9:45 - 10:30	**6G and Future Network Research, A Smart Internet Lab Perspective** **Professor Dimitra Simeonidou**, Director of Smart Internet Lab Department of Electrical and Electronic Engineering, University of Bristol Chair: **Professor Reza Nejabati**, Professor of Intelligent Networks and Head of the High Performance Networks Research Group, Department of Electrical and Electronic Engineering, University of Bristol
Session 1: Keynote Lecture	
10:30 - 11:15	**6G – The Next Hyper-Connected Experience For All** **Dr Dan Warren**, Director, Advanced Network Research at Samsung R&D UK Chair: **Professor Mark Beach**, Professor of Radio Systems Engineering and Head of Communications Systems & Networks Research Group, Department of Electrical and Electronic Engineering, University of Bristol

11:15 - 11:35	*Break*

Session 2: Talks

11:35 -11:40	Chair: **Dr Shuangyi Yan**, Senior Lecturer in High Performance Networking & Optical Networking, Department of Electrical & Electronic Engineering, University of Bristol
11:40 - 12:00	### 6G orchestration: a story of Intelligence, agility and human Centrism **Dr Xenofon Vasilakos**, Lecturer in Artificial Intelligence for Digital Infrastructures, Department of Electrical and Electronic Engineering, University of Bristol
12:00 -12:20	### Beyond Shannon: Goal-Oriented, Semantic and Emergent Communication for 6G **Professor Robert Piechocki**, Professor of Wireless Systems and Head of Communication Systems & Networks Research Group, Department of Electrical and Electronic Engineering, University of Bristol
12:20 - 12:40	### Human Centric 6G: From Human Centric Networks to Human Centric Society **Dr Yulei Wu**, Associate Professor in Digital Twins for Future Connectivity Infrastructures, Department of Electrical and Electronic Engineering, University of Bristol
12:40 - 13:00	### Building and Delivering Virtual Interactive Spaces in the Metaverse **Dr Angeliki Katsenou**, Senior Lecturer in Networked Media and **Professor Dave Bull**, PI on the MyWorld Programme Department of Electrical and Electronic Engineering, University of Bristol
13:00 - 14:00	*Lunch & Lab tours*

Session 3: Panel Session

14:00 - 15:00	**The foretaste of a future 6G society**
	Panel Session Lead: **Dr Henrik Almeida**, Head of Ericsson Research UK
	Professor Joe Butler, Chief Technology Officer, Digital Catapult
	Dr Yansha Deng, Senior Lecturer, King's College London
	Mr Simon Fletcher, CEO, Real Wireless
	Dr Dritan Kaleshi, Director of 5G Technology, Digital Catapult
15:00 - 15:20	*Break*

Session 4: Panel Session

15:20 -16:20	**Bridging the gap: How can academic research best complement industrial R&D?**
	Panel Session Lead: **Professor Simon Saunders**, Independent Advisor and Visiting Professor at University of Bristol
	Dr Dan Warren, Director, Advanced Network Research at Samsung R&D UK
	Professor Joe Butler, Chief Technology Officer at Digital Catapult
	Professor John Haine, Emeritus Board Member at IoT Security Foundation
	Mr Paul Thomas, Visiting Professor, University of Bristol
	Dr Stephen Allpress, CEO, Folio Intelligence, UK
	Mr Moray Rumney, Director, Rumney Telecom Limited
	Dr Federico Boccardi, Head of Telecom Policy, Europe at AWS

Session 5: Project Showcase

16:20 - 16:25	### Introduction to our Smart Internet Lab Projects **Professor Dimitra Simeonidou**, Director of Smart Internet Lab Department of Electrical and Electronic Engineering, University of Bristol
16:25 - 17:30	SWAN NGCDI PROTEUS O-RANOS REASON EPSRC Hubs Quantum Hubs UKTIN Allegro Quantum Data Centre

Thursday 29 June 2023
Themes: **Optical Comms, Quantum & 6G**

Time	Session
9:00 – 9:30	Arrival, tea/coffee
Session 6: Keynote Lecture	
9:30 – 10:15	**There's much more to optical networks than increasing capacity** **Mr Andrew Lord**, Senior Manager, Optical Networks Research, BT, UK Chair: Professor Reza Nejabati, Professor of Intelligent Networks and Head of the High Performance Networks Research Group, Department of Electrical and Electronic Engineering, University of Bristol
Session 7: Talks	
10:15 - 10:20	Chair: **Dr Edmund Harbord**, Senior Lecturer in Quantum Communication Technologies, Department of Electrical & Electronic Engineering, University of Bristol
10:20 - 10:40	**Quantum communication with CubeSats** **Dr Siddarth Joshi**, Lecturer in Optical Communications Department of Electrical and Electronic Engineering, University of Bristol
10:40 -11:00	**QKD and FPGAs protecting the 5G O-RAN Fronthaul** **Dr Romerson Oliveira**, Senior Research Associate, Department of Electrical and Electronic Engineering, University of Bristol

11:00 - 11:20	**Role of Quantum Technologies in 6G**
	Professor Reza Nejabati, Professor of Intelligent Networks and Head of the High Performance Networks Research Group, Department of Electrical and Electronic Engineering, University of Bristol
11:20 - 11:40	*Break*

Session 8: Keynote Lecture

11:40 -12:25	**Advances in compound semiconductor materials and devices for future network applications**
	Professor Wyn Meredith, Director, Compound Semiconductor Centre and Chair of 'CSconnected', The South Wales Semiconductor Cluster Chair: **Dr Shuangyi Yan**, Senior Lecturer in High Performance Networking & Optical Networking, Department of Electrical & Electronic Engineering, University of Bristol
12:25 -13:30	*Lunch & Lab tours*

Session 9: Poster Session & Elevator Session by PhD and junior researchers

13:30 - 13:35	**Introduction to the Poster Session** **Professor Dimitra Simeonidou**, Director of Smart Internet Lab, Department of Electrical and Electronic Engineering, University of Bristol
13:35-14:45	**Quantum & Photonics Research Group:** **Miss Jaya Sagar**, PhD Student, QET Labs **Mr Marcus Clark**, PhD Student, QET Labs **Mr Michael Neville**, PhD Student, QET Labs **Mr David Dlaka**, PhD Student, QET Labs **Communication Systems & Networks Research Group:** **Mr Zhihan Ren,** PhD Student **Ms Claire Serugunda, P**hD Student **Mr Evangelos Xenos,** PhD Student **Mr Habib Taha Kose,** PhD Student **Mr Hakan Erdol,** PhD Student **High Performance Networks Research Group:** **Dr Sima Bahrani,** Senior Research Associate **Dr Romerson Oliveira,** Senior Research Associate **Mr Sen Shen**, PhD Student **Mr Yiran Teng**, PhD Student **Miss Xueqing Zhou**, PhD Student **Mr Haiyuan Li**, PhD Student
14:45 -15:00	*Break*

Session 10: Talks

15:00 - 15:05	**Quantum Networking** Chair: **Dr Edmund Harbord**, Senior Lecturer in Quantum Communication Technologies, Department of Electrical & Electronic Engineering, University of Bristol

15:05 - 15:25	### ZALM: A Systems Engineering Perspective **Professor Dan Kilper**, Professor of Future Communication Networks, Trinity College Dublin and Director of the SFI CONNECT, Ireland's centre for future communications and networks, Trinity College, University of Dublin
15:25 -15:45	### Dynamic Entanglement Distribution Quantum Networking **Dr Rui Wang**, Lecturer, Department of Electrical and Electronic Engineering, University of Bristol
15:45 - 16:05	### Resource allocation and network architecture design in distributed quantum computing interconnect networks **Dr Sima Brahani**, Senior Research Associate, Department of Electrical and Electronic Engineering, University of Bristol

Session 11: Panel Session

16:05 - 17:05	### Network Security & Reliability Panel Lead: **Professor Lena Wosinska**, Professor in Optical Networks, Chalmers University of Technology, Gothenburg, Sweden **Professor Mark Beach**, Professor of Radio Systems Engineering and Head of the Communication Systems & Networks Research Group, University of Bristol **Professor Piero Castoldi**, Head of CNIT, Pisa, Italy **Dr Maria Lema**, Co-Founder Weaver Labs **Dr Paul Harris**, Principal Wireless Architect at VIAVI Solutions
17:05 - 17:10	### Concluding remarks: **Professor Dimitra Simeonidou**, Director of Smart Internet Lab Department of Electrical and Electronic Engineering, University of Bristol
17:10	*Close*

Participant Biographies Day 1

Dr Stephen Allpress, Folio Intelligence

Visiting Industrial Professor of the Smart internet Lab

Steve Allpress is a Bristol-based technology entrepreneur. Stephen Allpress started his technical education as an engineering apprentice at Racal in Reading and first came to Bristol as a student graduating from the University of Bristol with a first-class honours degree in Electronic Engineering and subsequently a Ph.D in CDMA Communications. He then left Bristol in 1993 to work in the USA for Bell Laboratories, and subsequently Broadcom in California, before returning to Bristol in 2002 to co-found his first technology start-up, Icera, where he was its Chief Technical Officer. Icera was eventually sold to NVIDIA and he subsequently became Senior Vice President of this business. He is a Visiting Industrial Professor at the University of Bristol and sits on the advisory board of the Smart Internet Lab. In July 2013, he was elected a Fellow of the Royal Academy of Engineering and he has been a Fellow of the Institution of Engineering and Technology since 2003. He has had over 50 US patents granted.

Dr. Henrik Almeida, Ericsson

*Head of Ericsson Research United Kingdom*

Henrik studied mathematics and physics at University of Stockholm in the early 80-ties. He joined Ericsson in 1990, and Ericsson Research in 1998 where he has held different research leader positions over the past 24 years. In 2010 he received his technical honorary doctorate, for research achievements in broadband access technologies, in collaboration with Lund University. Initially driving the evolution of fixed broadband access, including VDSL2, GPON, and the standards foundation for G.fast (ITU-T). Later, moved to wireless and new indoor radio research, enabling the Ericsson indoor Radio Dot System, advanced compression for the new Low Layer Split in 5G, and recently secure, intelligent, and intent based management solutions for Smart Industries. Currently on a long-term assignment, heading up the new Ericsson Research United Kingdom site, focusing on 6G Networks and Security.

Prof Mark Beach, University of Bristol

Professor of Radio Systems Engineering

The core focus of Mark's research is the application of multi-element antenna systems (also known as Multiple-Input Multiple-Output (MIMO) or Smart Antennas) to enhance the performance of wireless systems in terms of higher data rates, whilst conserving both bandwidth and power. Fundamental to the successful design and deployment of such systems is an in-depth understanding of the multi-dimensional wireless channel necessitating joint characterisation of both the antenna elements and the propagation medium.
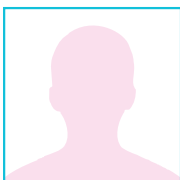
Dr Federico Boccardi, AWS

Head of Telecom Policy, Europe and Visiting Industrial Professor of the Smart Internet Lab

Professor Dave Bull, University of Bristol

Professor of Signal Processing

David R. Bull (Fellow, IEEE) received a B.Sc. degree from the University of Exeter, Exeter, U.K., in 1980, an M.Sc. degree from the University of Manchester, Manchester, U.K., in 1983, and the Ph.D. degree from the University of Cardiff, Cardiff, U.K., in 1988. He was previously a Systems Engineer with Rolls Royce, Bristol, U.K., and a Lecturer with the University of Wales, Cardiff, U.K. In 1993, he joined the University of Bristol, Bristol, U.K., and is currently its Chair of Signal Processing and the Director of Bristol Vision Institute. He is also the Director of the recently announced £46 m UKRI 'MyWorld' Strength in Places Programme. In 2001, he Co-Founded a university spin-off company, ProVision Communication Technologies Ltd., specializing in wireless video technology. He has authored more than 450 papers on the topics of image and video communications and analysis for wireless, Internet, and broadcast applications, together with numerous patents, several of which have been exploited commercially. He is the author of three books and has delivered numerous invited/keynote lectures and tutorials. He was the recipient of two IET Premium Awards for his work. Dr. Bull is a Fellow of the Institution of Engineering and Technology.

Prof Joe Butler, Digital Catapult

Chief Technology Officer and board member at the Digital Catapult

Joe is the Chief Technology Officer and board member at the Digital Catapult. He is chair of the UKTIN programme board and cofounded the SONIC open networking and OpenRAN labs in partnership with Ofcom. He has a background in AI and Telecoms and is a visiting professor at the SMART Internet Lab at University of Bristol. Previously he was at the National Infrastructure Commission where he was author of recommendations to government on 5G and the future of mobile communications in the UK and on an interim basis supported DCMS as their Director of Telecoms and Chief Scientific Advisor. Earlier roles include Chief Technology Officer for the radio spectrum and Director of AI and Machine Learning at Ofcom, including working on delivering multi-billion spectrum auctions for 4G and 5G.

Dr Yansha Deng, King's College London

Senior Lecturer

Dr Yansha Deng is currently a Senior Lecturer (Associate Professor) in the Department of Engineering at King's College London, London, United Kingdom. She received her Ph.D. degree in electrical engineering from the Queen Mary University of London, U.K., in 2015. From 2015 to 2017, she was a Post-Doctoral Research Fellow with King's College London, U.K. She has secured more than £2.3 million of research funding as the PI and has received the EPSRC NIA award. She has published 100+ journal papers and 50+ IEEE/ACM conference papers. Her research interests include molecular communication and machine learning for 5G/6G wireless networks. She was a recipient of the Best Paper Awards from ICC 2016 and GLOBECOM 2017 as the first author, and the IEEE Communications Society Best Young Researcher Award for the Europe, Middle East, and Africa Region 2021.

Mr Simon Fletcher, Real Wireless

Chief Technical Officer

With over 20+ years in the Mobile and Wireless technologies sectors, Simon has led Engineering developments for core technology in 3G, 4G working in international Joint Ventures environments, establishing open interfaces and emergent architecture and product commercialisation ecosystems. He now applies that knowledge through his consulting to both public and private sectors, advising on innovation in the adoption of mobile and wireless; supporting the establishment of UK5G with a focus in the Steering Board on Internationalisation as the co-Chair, and supports triple-helix early-stage research as a Director of Mobile VCE. He is also the CSO for the Small Cell Forum.

Prof John Haine, IoT Security Foundation

Honorary Visiting Professor in Electronic and Electrical Engineering at Bristol University

John Haine's 52-year career includes R&D in radio circuitry and microwave circuit theory; the design of novel radio systems for cordless telephony, mobile data, fixed wireless access and IoT communications; and various standardisation activities. In 2010 he joined Cognovo, a spin-out from ARM Holdings, which was acquired by u-blox AG in 2012. He led u-blox' involvement in 3GPP NB-IoT standardisation and the company's initial development of the first modules for trials and demonstrations. He is an honorary Visiting Professor in Electronic and Electrical Engineering at Bristol University, where he chairs the SWAN Prosperity Partnership Project External Advisory Board, and serves on the technical advisory board of Forefront RF, a Bristol University spin-out.

Dr Edmund Harbord, University of Bristol

Senior Lecturer in Quantum Communication Technologies

Edmund Harbord, a senior lecturer at the University of Bristol, specializes in semiconductor quantum devices and their application in telecommunications systems. He holds a Ph.D. in semiconductor dots from Imperial College London and previously held a JSPS Fellowship at the University of Tokyo. Recently, he secured EPSRC funding for his New Investigator Award on "Tamm Assisted Metasurface Emitting Lasers" for sensing and datacomms. Edmund serves as an elected member of the committee for the Quantum Electronics and Photonics group at the Institute of Physics.

Dr Dritan Kaleshi, Digital Catapult

Director of Technology - 5G

Dritan is Director of 5G Technology at Digital Catapult, where he established the Future Networks and Digital Infrastructure programmes. He is a founder of the SONIC Labs and of UK Telecommunication Network (UKTIN). His focus is on national coordination in telecommunications, how to best support advanced connectivity infrastructure uptake, grow UK capabilities in telecommunications R&D, as well as developing in Digital Catapult technical advances on new 5G/6G open network architectures, network and service orchestration, and edge computing. Over the past 30 years he has made a wide range of research contributions and practical implementations in communication networks, distributed system design and interoperability.

Dr Angeliki Katsenou, University of Bristol

Senior Lecturer in Networked Media

Angeliki Katsenou received a Diploma in Electrical and Computer engineering and an MSc degree in Signal and Image Processing from the University of Patras, Greece, respectively, and a PhD degree from the Department of Computer Science and Engineering, University of Ioannina, Greece. From 2015-2022, she was a Senior Research Fellow with the Visual Information Lab, University of Bristol, U.K, and now holds an Honorary title while continuing the collaboration. In 2022, she was an Assistant Professor in the Electronics and Electrical Engineering Department, at Trinity College Dublin, Ireland, and since 2023 she has been a Senior Lecturer in Networked Media at the University of Bristol. Her main research interests include topics around the video streaming pipeline: acquisition, analysis, compression, and communication, as well as adding the human in the loop to understand perception and quality of experience. Other side research activities include data and biomedical engineering. She was awarded a Leverhulme Early-Career Fellowship in 2017 and has experience in several EC-funded, UKRI projects and direct collaborations with video technology industry leaders.

Prof Reza Nejabati, University of Bristol

Professor of Intelligent Networks and Head of the High-Performance Network Research Group

Reza Nejabati is currently a chair professor of intelligent networks and head of the High-Performance Network Research Group in the Department of Electrical and Electronic Engineering in the University of Bristol, UK. He is also a visiting professor and Cisco chair in the Cisco center for Intent Based Networking in the Curtin University, Australia. He has established successful and internationally recognised research activities in "Autonomous and Intent Based Networks," as well as "Quantum Networks." His research received the prestigious IEEE Charles Kao Award in 2016 and has done important contributions in 5G, Smart City, Quantum Communication, and Future Internet Experimentation. Building on his research, he co-founded a successful start-up company (Zeetta Networks Ltd). It has currently 25 employees and £6m VC and external funding.

Prof Rob Piechocki, University of Bristol

Professor in the School of Computer Science, Electrical and Electronic Engineering, and Engineering Maths

Robert J Piechocki is Professor in the School of Computer Science, Electrical and Electronic Engineering, and Engineering Maths. His research interests span all areas of connected intelligent systems. His domain expertise is Connected and Automated Vehicles (CAV), and wireless sensing for eHealth. He has published over 200 papers in peer-reviewed international journals and conferences and holds 13 patents in these areas. Robert is leading wireless connectivity and sensing research activities for the IRC SPHERE project (winner of 2016 World Technology Award). Robert is also a PI for several current high-profile projects in networks, connectivity and sensing funded by industry, Innovate UK and EPSRC such as VENTURER, FLOURISH, NG-CDI, OPERA.

Mr Moray Rumney, Telecom Limited

Director of Rumney Telecom Limited

Prof Simon Saunders PhD CEng FREng FIET FITP, Independent Advisor

Independent Telecoms Advisor, Honorary Professor University of Bristol

Prof. Simon Saunders is an advisor and researcher with deep industry and academic background in communication systems technology. He is Advisor to the Department for Science, Innovation and Technology, an Honorary Professor at the University of Bristol, Visiting Professor at King's College London, and Trustee of the charity Music for All. In 2021 he was elected Fellow of the Royal Academy of Engineering. Simon is a specialist in the technology of wireless communications, with a technical and commercial background derived from senior appointments in both industry (including Google, Motorola and Philips), academia (University of Surrey, Trinity College Dublin) and policy and regulation (Ofcom and UK Government).

### Prof Dimitra Simeonidou, University of Bristol

Professor and Director, Smart Internet Lab

Dimitra Simeonidou (FREng, FIEEE) is a Full Professor at the University of Bristol, the Co-Director of the Bristol Digital Futures Institute, and the Director of the Smart Internet Lab. Her research focuses in the fields of high performance networks, programmable networks, wireless-optical convergence, 5G/B5G and smart city infrastructures. She is increasingly working with Social Sciences on topics of digital transformation for society and businesses. Dimitra has also been the Technical Architect and the CTO of the Smart City project Bristol Is Open. She is currently leading the Bristol City/Region 5G urban pilots. She is the author and co-author of over 500 publications, numerous patents and several major contributions to standards. Dimitra is a Fellow of the Royal Academy of Engineering, a Fellow of the Institute of Electrical and Electronic Engineers, and a Royal Society Wolfson Scholar.

Dr Paul Thomas, Visiting Prof, University of Bristol

Technical Director for Innovation UK Gov, Visiting Professor
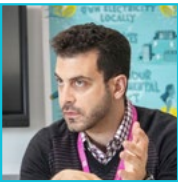
Dr Xenofon Vasilakos, University of Bristol

Lecturer in AI for Digital Infrastructures

Xenofon Vasilakos is a Lecturer in AI for Digital Infrastructures with the University of Bristol and a member of Bristol Digital Futures Institute (BDFI) and Smart Internet Lab. He holds an MSc degree in Parallel and Distributed Computer Systems from VU Amsterdam and a PhD degree in informatics from AUEB Athens. He has participated in various EU or French, British, and Greek national research projects, as well as industry-funded projects. His current research focus is on natively-inteligent 6G architectures aiming Zero-touch networking.

Dr Dan Warren, Samsung Research UK

Director of Advanced Network Research

Dan Warren is Director of Advanced Network Research at Samsung Research UK. He leads a team of researchers working on cutting-edge mobile telecoms technology innovation, in the fields of 5G, Beyond 5G and the application of Artificial Intelligence. Dan applies his broad experience in the industry across technical, commercial, strategic and regulatory topics to steer Research towards relevant and commercially viable solutions. He is currently Chair of the Steering Board of the European Commission 5G-PPP, a Board member of 5GIA and a member of a number of External Advisory Boards for academic research projects. Prior to joining Samsung, Dan held senior roles at Capita, GSMA, Vodafone and Nortel. Dan is a widely respected authority on Telecoms, having been included in Global Telecoms Business Magazine 'Top 40 Under 40' list for three years, and in Capacity Magazine's '20 Innovators to Watch' in 2018. Dan holds a Ph. D. in Applied Mathematics from Brunel University.

Prof Evelyn Welch, University of Bristol

Vice-Chancellor and President of the University of Bristol

Evelyn Welch graduated from Harvard University, receiving her PhD from the Warburg Institute, University of London. She was previously Senior Vice-President for Service, People & Planning at King's College London, and had been Vice-President (Arts and Sciences) and Provost (Arts and Sciences). She has taught at University of Essex, the Warburg Institute, and held leadership roles at University of Sussex (PVC Teaching and Learning) and Queen Mary, University of London (Dean, Arts and PVC Research and International). As Professor of Renaissance Studies, she has led major research programmes including 'The Material Renaissance,' and 'Beyond Text: Performances, Sounds, Images'. She recently completed a Wellcome Trust Senior Investigator Award for a project on 'Renaissance Skin' and has authored numerous books, including Fashioning the Early Modern: Creativity and Innovation in Europe, 1500-1800 (OUP 2017), and Shopping in the Renaissance (Yale 2005), winning the Wolfson Prize for History.
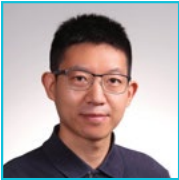
Dr Yulei Wu, University of Bristol

Associate Professor in Digital Twins for Future Connectivity Infrastructures

Dr. Yulei Wu is an Associate Professor with the Department of Electrical and Electronic Engineering, University of Bristol, UK. He is also affiliated with the Bristol Digital Futures Institute and the Smart Internet Lab. He received his Ph.D. degree in Computing and Mathematics and B.Sc. (1st Class Hons.) degree in Computer Science from the University of Bradford, UK, in 2010 and 2006, respectively. His research interests include digital twins, networks, edge computing, and digital infrastructure. He has published 8 authored/ edited monograph books and was the recipient of 5 Best Paper Awards. His work has been featured by the IEEE Network Scanning the Literature and the IEEE Xplore Innovation Spotlight.

Dr Shuangyi Yan, University of Bristol

Senior Lecturer in High Performance Networking & Optical Networking

Dr. Shuangyi Yan is a Senior Lecturer in the High Performance Networks group at the Smart Internet Lab, University of Bristol. He obtained his B.E degree from Tianjin University, China in 2004 and completed his PhD in optical engineering at the Xi'an Institute of Optics and Precision Mechanics, CAS, China in 2009. From 2011 to 2013, Dr. Yan conducted postdoctoral research at the Hong Kong Polytechnic University. Since joining the High Performance Networks Group at the University of Bristol in July 2013, he has dedicated his research to the development of future networks, including dynamic optical networks and 5G Beyond networks, multidimensional optical networks, and data centre networks. Dr Yan has authored or co-authored over 90 refereed publications, including post-deadline papers and invited talks at prestigious conferences. Moreover, he actively engages with the technical community, serving as a valued member of the Technical Program Committee and Co-Chair in various conferences, such as EuCNC, ONDM, OECC, and ACP.

Participant Biographies Day 2
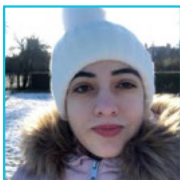
Dr Sima Bahrani, University of Bristol

Senior Research Associate

Sima Bahrani completed her PhD in Electrical Engineering from Sharif University of Technology, Iran, in 2017. She then joined The University of Leeds as a research fellow, followed by a one-year postdoctoral experience at The University of Edinburgh. Currently, she is a senior research associate at Smart Internet Lab, The University of Bristol. Sima has more than 9 years research experience in the areas of quantum cryptography, quantum communication, and quantum networks.

Prof Mark Beach, University of Bristol

Professor of Radio Systems Engineering

The core focus of Mark's research is the application of multi-element antenna systems (also known as Multiple-Input Multiple-Output (MIMO) or Smart Antennas) to enhance the performance of wireless systems in terms of higher data rates, whilst conserving both bandwidth and power. Fundamental to the successful design and deployment of such systems is an in-depth understanding of the multi-dimensional wireless channel necessitating joint characterisation of both the antenna elements and the propagation medium.

Prof Piero Castoldi, Head of CNIT, Scuola Superiore Sant'Anna, Pisa, Italy

DIrector of TeCIP Institute

Piero Castoldi (IEEE SM'12) got his PhD degree from the University of Parma in 1997. He is currently Full Professor in Telecommunications and Leader of the "Networks and Services" research area and Director of the TeCIP Institute of Scuola Superiore Sant'Anna, Pisa, Italy. He has been involved with various responsibilities in several national and europena projects and he has managed several corporate-sponsored projects by the Italian Railway Company, Ericsson, Telecom Italia. His most recent research interests lie in the areas of optical network architectures, interconnection networks for Data Centers, networks for industrial applications, 5G/6G networking. He is author of more than 500 technical papers published in international journals and international conference proceedings.

Prof Lena Wosinska, Chalmers University of Technology, Sweden

Professor in Optical Networks

Lena Wosinska received her PhD degree in Photonics and Docent degree in Optical Networks from KTH Royal Institute of Technology, Sweden, where she became Full Professor of Telecommunication. At KTH she established and led a highly recognized research group working on optical networks. Currently she is a Research Professor with the Chalmers University of Technology, Sweden, where she moved together with her team. Her research broadly concerns optical communications and networks, with a focus on fiber access and 5G/6G transport networks, energy and cost efficiency, optical data center networks, photonics in switching, network control, reliability, security, and survivability, incl. application of ML/AI in solving various research problems. Recently, she received IEEE ComSoc ONTC Outstanding Technical Achievement Award for Pioneering Research in Optical Networks. She has been involved in many expert assignments, had a leading role in several EU projects, as well as coordinating national and international research projects

Dr Paul Harris, VIAVI Solutions

Principal Wireless Architect, CTO Office

Paul received his PhD from the University of Bristol for evaluating the performance of massive MIMO technology and has since gained a range of experience in research, design, implementation, and standardisation. He is currently a Principal Wireless Architect within the CTO Office at VIAVI Solutions providing thought leadership on new and emerging technologies for 5G, 6G and beyond, and represents VIAVI within a range of bodies and fora including 3GPP, the Next G Alliance, Cambridge Wireless, and UKTIN. He is also an Honorary Industrial Fellow at the University of Bristol, a Special Interest Group Champion for Radio Technology within Cambridge Wireless, and a Chartered Engineer.

Dr Siddarth Koduru Joshi, University of Bristol

Lecturer in Optical Communications

Siddarth is an expert in quantum communication. He has worked for several different quantum satellite missions and pioneered quantum networking technologies. He obtained his PhD from Singapore in 2014, did postdocs in Vienna and Bristol and now leads his own group in QET Labs. He is a close collaborator of the Smart Internet Lab. His current research focus is on improving the scalability, distance, and number of supported applications of quantum internet technologies.

Dr Dan Kilper, CONNECT

Professor of Future Communication Networks and Director of the SFI CONNECT Centre, Ireland's centre for future communications and networks, Trinity College, University of Dublin

Dr. Dan Kilper is Professor of Future Communication Networks and SFI CONNECT Centre Director at Trinity College Dublin, Ireland. He holds an adjunct faculty appointment at the Columbia University Data Science Institute and the College of Optical Sciences, University of Arizona.. He received MS (1992) and PhD (1996) degrees in Physics from the University of Michigan. From 2000-2013, he was a member of technical staff at Bell Labs, and he co-founded Palo Verde Networks, a startup developing optical technologies for AI controlled software-defined optical networks. He holds thirteen patents and authored six book chapters and more than one hundred sixty peer-reviewed publications. His research is aimed at solving fundamental and real-world problems in communication networks, addressing interdisciplinary challenges for smart cities, sustainability, and digital equity.

Dr Maria Lema, Weaver Labs

Co-founder of Weaver Labs

María Lema is a Co-Founder of Weaver Labs, a Telecoms-software company building a blockchain-based network management tool to open up access to connectivity. Maria leads commercial and strategy activities, as well as building partnerships and company execution and operations. Maria holds a Ph.D. in Telecoms, and previous to founding Weaver Labs she was working as Operational Lead at King's College London in the 5G Tactile Internet Lab powered by Ericsson. She has extensive experience in the telecommunications market and helping industries adopt connectivity to drive digital transformation. María often disseminates her work at many important events within the industry such as Ted X King's College London, Mobile World Congress, TelecomsTV DSP, International Cyber Security Expo, Capacity Europe, Cambridge Wireless International Conferences, The Green Network, and many more. Her work has been covered by many top-level media such as CNN Business, The Telegraph Business Review, Raconteur, and The Guardian.

Mr Andrew Lord, BT

Senior Manager, Optical Networks and Quantum Research

Andrew joined BT in 1985 after a BA in Physics from Oxford University. He has helped design a wide range of optical network systems and technologies, including long haul subsea and terrestrial DWDM networks He currently leads BT's optical core and access research including optical access, high speed transmission, and Quantum Communications. He was Technical Program Chair for OFC 2015 and General Chair for OFC 2017; he will be TPC Chair of ECOC 2023. He is Editor-in-Chief of the Journal of Optical Communications and Networking, is Visiting Professor at Essex University, Fellow of the IEEE and a BT Distinguished Engineer

Prof Wyn Meredith, Compound Semiconductor Centre

Director and Chair of 'CSconnected', The South Wales Semiconductor Cluster Director of the Compound Semiconductor Centre

Wyn received a MA (Physics) from Cambridge University and PhD from Heriot Watt University in blue semiconductor laser development. He has 25+ years of experience gained at Ferranti, BT R+D, Detica (now BAE), Sharp Research labs, IQE plc and Compound Semiconductor Technologies Ltd (now Sivers Semiconductors). Wyn is the founding Director of the Compound Semiconductor Centre, a Joint Venture between IQE Plc and Cardiff University, focussed on the commercialisation of R+D in compound semiconductor materials and devices. He is a Non-Executive Director of The Compound Semiconductor Applications Catapult, and Chair of 'CSconnected'; a £43M project focussed on expanding the South Wales Semiconductor Cluster (2020-25). In 2021 he was elected to the Fellowship of the Learned Society of Wales, and awarded an Honorary Distinguished Professorship by Cardiff University in recognition of providing expert advice on commercialisation of research and interaction with industry.

Prof Reza Nejabati, University of Bristol

Professor of Intelligent Networks and Head of the High-Performance Network Research Group

Reza Nejabati is currently a chair professor of intelligent networks and head of the High-Performance Network Research Group in the Department of Electrical and Electronic Engineering in the University of Bristol, UK. He is also a visiting professor and Cisco chair in the Cisco center for Intent Based Networking in the Curtin University, Australia. He has established successful and internationally recognised research activities in "Autonomous and Intent Based Networks," as well as "Quantum Networks." His research received the prestigious IEEE Charles Kao Award in 2016 and has done important contributions in 5G, Smart City, Quantum Communication, and Future Internet Experimentation. Building on his research, he co-founded a successful start-up company (Zeetta Networks Ltd). It has currently 25 employees and £6m VC and external funding.

Dr Romerson Oliveira, University of Bristol

Senior Research Associate

Dr. Oliveira is a Telecommunications Engineer with a Master and a PhD in Computer Science. He is currently a Senior Research Associate at the High-Performance Networks research group and is leading the research on programmable hardware for both classical and quantum networks. Recently, he has been doing research combining FPGAs, QKD systems and the 5G Fronthaul, and his most recent publication is titled "100 Gbps Quantum-Secured and O-RAN-Enabled Programmable Optical Transport Network for 5G Fronthaul" coming in the next edition of JOCN. This year, he was invited to present in a live demo his research work in USA during the prestigious OFC'2023 conference.

Prof Dimitra Simeonidou, University of Bristol

Professor and Director, Smart Internet Lab

Dimitra Simeonidou (FREng, FIEEE) is a Full Professor at the University of Bristol, the Co-Director of the Bristol Digital Futures Institute, and the Director of the Smart Internet Lab. Her research focuses in the fields of high performance networks, programmable networks, wireless-optical convergence, 5G/B5G and smart city infrastructures. She is increasingly working with Social Sciences on topics of digital transformation for society and businesses. Dimitra has also been the Technical Architect and the CTO of the Smart City project Bristol Is Open. She is currently leading the Bristol City/Region 5G urban pilots. She is the author and co-author of over 500 publications, numerous patents and several major contributions to standards. Dimitra is a Fellow of the Royal Academy of Engineering, a Fellow of the Institute of Electrical and Electronic Engineers, and a Royal Society Wolfson Scholar.

Dr Rui Wang, University of Bristol

Lecturer, Department of Electrical & Electronic Engineering

Dr Rui Wang received his MSc degree in Communication Network and Signal Processing and his PhD degree in Electrical and Electronic Engineering at the University of Bristol in 2015 and 2019 respectively. He is now a Lecturer with the University of Bristol focusing on the quantum network architecture design/implementation and dynamic entanglement distribution quantum networking. His research is aligned with High Performance Networks Group and Smart Internet Lab to enable quantum/optics technologies for the future telecom networks.

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