

The Artificial Intelligence SIG

'Battling AIs against each other – is this the future?'

13th March 2018

Hosted by **Cambridge Consultants, Cambridge Science Park**

The Artificial Intelligence SIG is championed by Laurent Brisedoux of **Amazon**, James Chapman of **Qualcomm**, Phil Claridge of **Mandrel Systems**, Gunter Haberkorn of **Magna International** and Peter Whale of **Peter Whale Consulting**

Venue address: **Cambridge Consultants, 29 Science Park, Milton Road, Cambridge CB4 0DW**

AGENDA

17:30 Registration

18:00 Introduction to Artificial Intelligence SIG: **Bob Driver, CEO, CW (Cambridge Wireless)**

18:05 Welcome from host: **Tim Fowler, Head of Wireless & Digital Services, Cambridge Consultants**

18:10 **Session chaired by Artificial Intelligence SIG Champion, James Chapman**

'Artificial audio intelligence: a new frontier in machine learning'

Dr Sacha Krstulović, Director of AA Labs, Audio Analytic

Recent years have seen artificial intelligence becoming a commercial asset through the growth of a whole new market segment of smart consumer products. In this context, AI aims to deliver human-like functionality in terms of computer speech, computer vision and music management. But what about the computer hearing in a more general sense that encompasses all sounds around us? Audio Analytic, a Cambridge-based AI company is holding the world leading position in researching, developing and commercialising cloudless sound recognition technology. The talk will outline the challenges associated with this particular AI modality. In particular, it will explain what makes it a league of its own where standard computer vision or computer speech recipes cannot simply apply, and where original IP needs to be developed in order to deliver a world leading sound recognition AI product.

18:30 Q & A

18:45 **Session chaired by Artificial Intelligence SIG Champion, James Chapman**

'Exploring the state of the art in Generative Adversarial Networks'

Monty Barlow, Technology Director, Cambridge Consultants

It's easy to think of deep learning as just something which chews on a load of data and makes a classification – the photo contains a dog; the audio waveform contains the word 'hello'. But in recent years, a rapidly evolving approach called 'Generative Adversarial Networks' (GANs), which pits one AI against another to improve learning, has allowed deep learning to create new, highly-realistic outputs. The implications of the technology are huge, from virtual worlds through to rigorous testing of other machine learning technology, from patching gaps in datasets through to security. In this session we'll look at how to design, train and use GANs, with practical examples from our AI research lab, the Digital Greenhouse. We'll consider the improvements that have been made since GANs' 2014 debut, and where they still fall short. We'll conclude with some predictions of where this technology could head.

19:30 Q&A

19:45 Wrap-up by **Artificial Intelligence SIG Champion, James Chapman**

19:50 **Following the end of the session, delegates are invited to network and enjoy beer, soft drinks and pizza. There will also be technology demonstrations from Cambridge Consultants of their Vincent AI painting system and Aficionado piano music genre detector**

21:00 **Event closes**

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

Profile of organisers

Cambridge Wireless (CW) @cambwireless

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 20 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 host and sponsor

Cambridge Consultants @CambConsultants

As a global centre of excellence for wireless design, Cambridge Consultants has developed a series of world firsts in a range of wireless technologies. Many products that you have used will have some component of our work inside. Project examples range from ultra-low-cost consumer radios to high value satellite handsets. Cambridge Consultants has helped clients to develop:

- World's smallest satellite data terminal
- World's first single-chip Bluetooth radio
- World's first GSM videophone for Orange
- World's first Continua Health-certified Bluetooth device
- Europe's first FCC-approved UWB product
- The ATC radios that manage US airspace

The company thrives on complex system design, getting it right, first time. The wireless team of over 100 engineers, designers, scientists and consultants create and deliver market-leading products and systems for clients around the world. www.cambridgeconsultants.com

Profile of Artificial Intelligence SIG Champions

Laurent Brisedoux, Amazon

Laurent Brisedoux has been heading the Amazon R&D team in Cambridge, part of the Lab126 organization, since its creation in 2014. His group is responsible for developing application, device and cloud software for Amazon's consumer electronic devices such as Kindle, Fire tablets, Fire TV, Dash, Echo and many more innovative products to come. Prior to that, Laurent was in charge of the development and productisation of imaging technologies at Broadcom, managing a group of 50 people across multiple locations worldwide. He joined the Broadcom Mobile Multimedia group in 2004 with the acquisition of Alphamosaic, one the Silicon Fen 'success stories'. Laurent is also a junior angel investor and working with several technology start-ups in the Cambridge area. www.amazon.com

James Chapman, Qualcomm

James is Qualcomm's VP responsible for its roadmap of Voice & Music products. Before joining Qualcomm as part of the acquisition of CSR, he was responsible for CSR's connectivity product line. Prior to CSR James has held senior software management roles at Broadcom; he was also the Head of Research for TTP Communications. James' 20 years in the high-tech industry started with a degree and PhD in theoretical Condensed Matter Physics from the University of Oxford. www.qualcomm.com

Phil Claridge, Mandrel Systems @MandrelSystems

Phil Claridge is a 'virtual CTO' for hire within Mandrel Systems covering end-to-end systems. Currently having fun and helping others with large-scale AI systems integration, country-wide large scale big-data processing, hands-on IoT technology (from sensor hardware design, through LoRa integration to back end systems), and advanced city information modelling. Supporting companies with M&A 'exit readiness', due-diligence and on advisory boards. Past roles include: CTO, Chief Architect, Labs Director, and Technical Evangelist for Geneva/Convergys (telco),

Arieso/Viavi (geolocation), and Madge (networking). Phil's early career was in electronics, and still finds it irresistible to swap from Powerpoint to a soldering iron and a compiler to produce proof-of-concepts when required. www.mandrel.com

Gunter Haberkorn, Magna

Profile to follow. www.magna.com

Peter Whale, Peter Whale Consulting @Peter_Whale

Peter is a technologist and business leader, with a long track record of conceiving, developing and marketing successful technology-based solutions, which have touched the lives of many millions of people. Currently exploring transformative possibilities in AI, IoT and future connected devices. Peter is co-author of the 'Essentials of Mobile Handset Design', published by Cambridge University Press. Peter is a board member of Cambridge Wireless, and is a champion of the CW Artificial Intelligence SIG. www.peterwhale.com

Profile of speakers

Dr Sacha Krstulović, Director of AA Labs, Audio Analytic @audioanalytic

Dr Sacha Krstulović was a Senior Research Engineer at Nuance's Advanced Speech Group (Nuance ASG) before joining Audio Analytic. At Nuance, he worked on pushing the limits of large scale speech recognition services such as Voicemail-to-Text and Voice-Based Mobile Assistants (Apple Siri type services). Prior to that, he was a Research Engineer at Toshiba Research Europe Ltd., developing novel Text-To-Speech synthesis approaches able to learn from data. He is the author and co-author of three book chapters, author of several international patents and several articles in international journals and conferences. Sacha is using his extensive audio analysis expertise to drive forward Audio Analytic's technology. He is passionate about researching and developing automatic recognition of sound where Audio Analytic is building significant leadership. www.audioanalytic.com

Monty Barlow, Technology Director, Machine Learning, Cambridge Consultants @CambConsultants

Monty Barlow leads the machine learning capability at Cambridge Consultants, with a particular focus on the practical application of artificial intelligence to industrial problems. Throughout his career he has sought challenges which require high performance computation and algorithms to solve, in diverse domains such as telecommunications, security, transport and healthcare. In 2014, he founded a research lab within Cambridge Consultants to develop and industrialise deep learning technology for client programmes.

www.cambridgeconsultants.com