

Bristol Scientific Club: Programme of Meetings 2015-2016

(1) Friday, 18 September 2015

Speaker : Sanja Dogramadzi: "Robots for Healthcare – Challenges and Opportunities" and

Guest Speaker: Praminda Caleb-Solly: "Assistive service robots to support active ageing and independent living"

Dr. Dogramadzi will reflect on the state of the art of robots currently deployed in healthcare and consider the challenges in regards to safety and standards that need to be developed. Autonomy will also be discussed. Autonomy defines what robots can do independently: the greater the autonomy, the more robots can decide on their own. However, giving more autonomy to robots does not always mean they will perform better. The system designers select the autonomy levels based on what they think would be appropriate and safe for the application. Health applications have a specific set of challenges and possible solutions related to autonomy which will be considered in this talk.

Dr. Dogramadzi is Associate Professor in Robotics at UWE and Medical Robotics Theme Leader, Bristol Robotics Laboratory.

Dr. Caleb-Solly comments: Our objective in developing assistive robots is to support independent and health living, helping people manage long-term conditions to maintain a high quality of life. A robot as the interface has the potential to offer a more social and entertaining interaction experience. However if an assistive robot is going to be a potential solution, it needs to be acceptable – what does this mean? Dr. Caleb-Solly will discuss the research conducted at the Bristol Robotics Lab into people's perceptions and expectations of assistive robots in a home environment, which is re-framing our approach to defining robot embodiments, how robots should look and interact with us.

Dr. Caleb-Solly is Associate Professor in Independent Living Systems at UWE, Assisted Living Theme Leader, Bristol Robotics Laboratory, and Head of Electronics and Computer Systems @ Designability.

(2) Saturday, 24 October 2015

Guest Speaker: David Phillips: "Forgeries and Science"

Art forgery world wide is a growing, multi-million dollar problem. It's often more a matter of confidence trickery than brilliant fabrication: forgeries deceive because we see what we want to see, and everyone wants an artwork to be a discovery. In the excitement, due diligence in form of documentary and scientific investigation can take a back seat. When science is applied, a huge range of techniques are routinely, incisively successful. However we will focus on a minority of cases where the scientific evidence has been misinterpreted, disputed, or faked. The views of the audience will be of great interest, for example on de-dolomitization and the Getty Kouros, and on prospects for novel forms of non-invasive inspection to be more revealing than traditional X-ray images in reconstructing the sequence of layers under the visible surfaces of oil paintings.

David Phillips has worked as a curator of art and exhibitions in Nottingham Castle Museum (1968-82), and Lecturer in Museum Studies and Art History at the University of Manchester (1982-98). He now lectures on a national art lecture circuit (Nadfas), and is currently following up interests in the psychology of perception and aesthetics.

(3) Saturday, 28 November 2015

Guest Speaker: Martin Evans: "1000mph In A Car!"

Bloodhound SSC is a World Land Speed Record car being designed and built in Bristol. The project's aim is two-fold: inspire young people to study Science, Technology, Engineering and Maths (STEM) and break the current record (763mph) and push it to 1000mph – yes, in a car! The team is headed by Richard Noble - himself a previous record holder and the driver will be current world record holder, RAF fighter pilot: Andy Green.

Martin Evans (DiMicro Ltd) is a trained Bloodhound 'Ambassador' and his talk will include videos and lots of technical details, the record attempt and how you can get involved with this amazing project.

(4) Friday, 19 February 2016

Speaker : Peter Bradley: "Medicines from Plants in the 21st Century: Evidence for Efficacy"

Plants have been used as medicines for millennia and numerous remedies derived from plants can be found in pharmacies and health stores today. While those marketed as medicines (with medicinal claims on labels) are subject to demanding regulatory requirements for safety and quality, in many cases the question of efficacy is side-stepped by a phrase such as "*a traditional herbal medicinal product for the symptomatic relief of*". Available clinical evidence, or lack of it, for the efficacy of some popular herbal medicines (or "phytomedicines") will be reviewed, as well as the prospects and difficulties for this type of product.

(5) Saturday, 19 March 2016

Guest Speaker: Richard Pinch: "Modern Cryptography"

Traditional symmetric or secret key cryptography has historically been the province of government, diplomatic and military users with a requirement for confidentiality. More recently asymmetric or public key cryptography has been developed and taken up to meet the requirements of life in cyberspace. Businesses and private individuals are now using it, often unknowingly, to achieve authentication as well as confidentiality. New threats and opportunities are emerging with the advent of quantum technology. Dr. Pinch will describe how cryptography is being used today and some of the challenges for the future.

Dr. Richard Pinch is Strategic Advisor, Mathematics and Crypt Research, GCHQ Cheltenham.

(6) Friday, 29 April 2016

Guest Speaker: Mark Birkinshaw : " The Cosmological Constant "

The cosmological constant had an ambiguous status for much of the twentieth century. After being added to General Relativity as a second fundamental constant of nature after the general gravitational constant, G, it passed in and out of favour. Currently the cosmological constant is thought to be driving the accelerating expansion of the Universe, and to constitute a kind of dark energy which may not, in fact, be constant. This talk will review the meaning of the

cosmological constant and describe why it is an important component of the "Standard Model" of cosmology, before looking at extensions and alternative interpretations of the data, and what may be revealed by the wave of new telescopes

Professor Mark Birkinshaw is William P. Coldrick Professor of Cosmology and Astrophysics at the University of Bristol.