# BMVA News

BMVA News[1] is published every three months. Contributions on any activity related to machine vision or pattern recognition are eagerly sought. These could include reports on technical activities such as conferences, workshops or other meetings. Items of timely or topical interest are also particularly welcome; these might include details of funding initiatives, programmatic reports from ongoing projects and standards activities. Items for the next edition should reach the Editor by 10 September 2016.

## Contents

## Editorial: *From Human Cravings to the Evolution of Intelligence*

One of the hallmarks of being human is our innate curiosity. Related to this is our craving for information and the desire not to miss anything. Accordingly, the media are only too ready to oblige by deluging us with huge amounts of information. In principle it is only relevant information that we need to be interested in. However, newspapers,

magazines and emails employ all sorts of wheezes to make us attend to their particular wares. Indeed, as a member of BMVA, IET, IEEE and other organs, I find myself targeted highly accurately with items that at first sight seem to be spot on. Currently, IET and IEEE are putting out weighty lists of technical developments on robots, autonomous vehicles and the like: I find these fascinating and virtually irresistible, and I am having to ration myself to examine only the one most interesting item in any list.

All this reflects another major problem of being human – that of lack of time, and the problem of being eternally busy. I don't want to dwell too long on the fact that people are nowadays so busy that it has become stupendously difficult to find referees for papers, but people are so targeted on achievement that begging letters from editors soon get pushed down to a low priority. I will however, add one thing: that not only do people not want to referee papers, but they can't even find time to reply and say they can't do it: in fact, the numbers of 'declinations' and 'uninviteds' (those identified as not responding within 2–3 weeks) tend to be about equal, reflecting impoliteness and lack of etiquette, quite apart from significantly delaying papers. (I come from an era when etiquette was the sine qua non, but like much else, it seems to be a dying art.)

So why am I adding to everyone's reading burden by writing a page or so every quarter? And what should I be saying? Comments on the state of the subject and the state of the world as they impinge on BMVA must be the order of the day, so long as doom and gloom are kept in their place and are parried by interesting observations and useful insights on the world. So I will suppress any possible reference to Brexit, which I fear holds no gain for any of us, and whose outcome is so uncertain that anything I might write is liable to be not only out of date but completely overturned before you have a chance of reading it (look what happened to Boris!).

Instead I will point to something that I heard in *The Week* about the intelligence of birds. First, it is interesting that the dinosaurs never died out: yes, the big ones did, but the modern survivors are the birds, which are all around us. Somehow the main survival route for the dinosaurs was learning to fly. Well, not only that but some birds have at least two foveas, allowing them to zoom onto distant prey with huge accuracy. Then there is their ability to weave

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intricate nests and even manage to work with tools. I've always found their skills in this direction remarkable and have been convinced that they outperform primates. After all, building an intricate nest is far more intellectually demanding than a monkey copying other monkeys in poking a stick onto a hole and drawing out a few termites. And taking prey up to a great height to drop it and thus smash it open so that it can be eaten is quite an achievement more than on a par with moving a box to help snatch a few out-of-reach bananas. It also seems to be possible to teach some birds to use language more effectively than chimpanzees; and their song generation and imitation abilities also imply substantial intelligence. Their migration capabilities are of course hugely impressive even by human standards, and it is still unclear how they achieve such feats.

But the fact that certain birds seem to have more intelligence than certain mammals makes it fascinating to wonder how they can achieve all this with brains whose volumes are at least a hundred times smaller. However, recent research has shown that their neurons are incredibly tightly packed, so that their numbers can exceed those of many primates. Apparently, this applies particularly to the forebrain, which is associated with intelligent behaviour. Interestingly, some of the neurons are small and locally connected, while others are large and make longer connections. This is clearly something which our deep learning colleagues might learn something useful from. One wonders why humans never learnt this strategy, but perhaps one has to evolve via the dinosaur route and risk becoming extinct before one can do so! Actually, there might be a lot of truth in this: for it is well attested in *The Seven Daughters of Eve* that man almost died out around 200,000 years ago, the human population having been reduced to some tens of individuals – following which huge evolutionary rates may well have led to our current level of intelligence as a species. By the way, the proof of this came from our mitochondrial DNA whose characteristics are passed solely down the female line (i.e., only from mother to child).

> Professor Roy Davies
> Editor, BMVA News
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## BMVA Distinguished Fellow 2017 – *Call for Nominations*

The BMVA Executive Committee seeks nominations for the *Distinguished Fellow 2017* award. This prestigious award is given to one person only each year in recognition to his/her services to the British Machine Vision community. The nominees must be distinguished researchers, based in the UK, who have contributed significantly to the field of research and the reputation of the British Machine Vision Community both nationally and internationally. Nominations, *with a few lines of rationale*, should be sent to Professor Roy Davies, Chair of the Distinguished Fellow Award Panel, by 1 September 2016.

> Professor Roy Davies
> Chair, Distinguished Fellow Award Panel
> email: e.r.davies@rhul.ac.uk

## BMVC 2016 – *Call for Participation*



19–22 September 2016, York
http://bmvc2016.cs.york.ac.uk/
Twitter: @bmvc2016

Registration opening soon

### Introduction

The British Machine Vision Conference (BMVC) is one of the major international conferences on computer vision and related areas. It is organised by the British Machine Vision Association (BMVA).

The 27th BMVC will be held at the University of York, 19–22 September 2016. The university is set on the outskirts of the historic walled city of York which features Roman and Viking history and is home to a number of world renowned tourist attractions ranging from the gothic cathedral York Minster to the National Railway Museum.

BMVC 2016 is a high quality single-track conference, comprising oral presentations and poster sessions (with oral acceptance $< 10\%$ in the last 6 years). The conference features two keynote presentations and a conference tutorial, and has associated workshops on the last day of the conference, including a PhD student workshop.

BMVC 2016 attracted 367 valid submissions. Reviewer load was kept to a maximum of 5 papers per reviewer.

### Conference tutorial

BMVC 2016 features a half-day conference tutorial on 19 September. The tutorial is particularly beneficial to research students and early career researchers who are working in this field. The topic for this year's tutorial is "Measurement Based Appearance Modelling" delivered by Abhijeet Ghosh.

### Dr Abhijeet Ghosh

Abhijeet Ghosh has a BE in Computer Science and Engineering from Gujarat University, an MS in Computer Science from Stony Brook University and a PhD in Computer Science from the University of British Columbia with a thesis on realistic materials and illumination environments supervised by Professor Wolfgang Heidrich. In 2007 he joined the Institute for Creative Technologies at the University of Southern California as a Senior Computer Scientist and, later, Research Assistant Professor. In 2012 he moved to Imperial College London to join the faculty in the Department of Computing. His PhD thesis was awarded the 2007 Alain Fournier Award and received a Marr Prize Honorable Mention in the same year. He currently holds both a Royal Society Wolfson Research Merit Award and an EPSRC Early Career Fellowship. His research interests include appearance modeling and computational illumination and photography for graphics and vision.

**Keynote speakers**

BMVC invites two leading researchers in the field to present their work at the conference. We are grateful to the following speakers who have agreed to give keynote lectures at the conference.

**Professor Katsushi Ikeuchi**

Katsushi Ikeuchi is a Principal Researcher of Microsoft Research. He received a PhD degree in Information Engineering from the University of Tokyo in 1978. After working at MIT AI Lab for three years as a postdoc fellow, at Electrotechnical Lab, Japan for five years as a researcher, at Carnegie Mellon University Robotics Institute for ten years as a faculty member, and at the University of Tokyo for 19 years as a faculty member, he joined Microsoft Research Asia in 2015. His research interests span computer vision, robotics and computer graphics. He has received several awards, including IEEE-PAMI Distinguished Researcher Award, the Okawa Prize from the Okawa foundation, and 紫綬褒章 (the Medal of Honor with Purple ribbon) from the Emperor of Japan. He is a Fellow of the IEEE, IEICE, IPSJ and RSJ.

**Dr Raquel Urtasun**

Raquel Urtasun has a BS and MS in Telecommunication Engineering from University of Navarra, Spain and wrote her MS Thesis at Institut EURECOM, France. She undertook a PhD in Computer Science at École Polytechnique Fédérale de Lausanne (EPFL) with a thesis on human body motion modelling under the supervision of Professors Pascal Fua and David Fleet at the University of Toronto. She spent time as a postdoc at both MIT and UC Berkeley before joining Toyota Technological Institute at Chicago in 2009 as an Assistant Professor. Since 2014 she has been an Assistant Professor at University of Toronto. Her research interests are statistical learning and computer vision, with a particular interest in non-parametric Bayesian statistics, latent variable models, structured prediction and their application to 3D scene understanding and human pose estimation.

**Important Dates**

| | |
|---|---|
| Author notification: | 15 July |
| Camera ready deadline: | 29 July |
| Early registration until: | 10 August |
| Conference tutorial: | Monday 19 September |
| Main conference: | Tuesday–Thursday, 20–22 Sept. |

**Registration**

BMVC 2016 offers a number of access options: full access, day access and tutorial access. The full access option covers the complete conference programme, including tutorial and social activities (reception and banquet). Both residential and non-residential registrations are available for the full access option, with optional pre- and post-conference accommodation (subject to availability). Full details, prices

and online registration will be appearing on the conference website before author notifications are sent out:
http://bmvc2016.cs.york.ac.uk/

Dr William AP Smith
University of York
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# Interested in Hosting the Computer Vision Summer School?

The BMVA's annual Computer Vision Summer School was the first in the world and has made an important contribution to educating vision researchers and encouraging a community spirit. It started out as a purely UK affair for first-year PhD students but recent years have seen students from other countries and also industrial delegates. The core material that is delivered is reasonably well-established, with the lectures being presented by subject experts from around the UK, though of course there is fine-tuning every year.

The summer school has been hosted by Swansea University for the past three years, with the organisers, Rita Borgo and Xianghua Xie, having done a truly superb job. However, it should not overstay its welcome and so we are looking for a new venue. If you are interested in hosting it, please drop me a line. In an ideal world, we would like someone to run it for about three years but we are perfectly happy for someone to host it for a single year. If there is a topic that you think the summer school really needs to cover but currently doesn't, this would give you an ideal opportunity to include it in the programme!

Adrian Clark
email: chair@bmva.org

# Travel Bursaries for International Conference Attendance

The BMVA provides a number of travel bursaries for student members of the BMVA who are research students at UK institutions to present their work at significant international conferences within the BMVA's remit. The maximum amount of a bursary is £750. In return for the bursary, students are asked to write a conference report for BMVA News – most of the conference reports you read in these august pages are from students who have received bursaries – or do some work for the BMVA. Details on eligibility and the application procedure are outlined on the BMVA website: note that the procedure has recently changed, and that strict deadlines now apply – as clearly indicated on the BMVA website.

Professor Lourdes Agapito
UCL
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## Archiving Datasets

When I started working in computer vision research, one of the main limiting factors was the availability of suitable data. The astonishingly rapid development of electronic imaging has changed all that – so much so that we normally have more data available than we know what to do with; the 'big data' era has definitely arrived.

People may know that I am very keen on disseminating datasets and software. I established an image archive, PEIPA (peipa.essex.ac.uk), as long ago as 1989–1990, with the explicit aim of making it easier to reproduce research findings. Since I took over as BMVA chair, the Executive Committee has had regular discussions on the possibility of using the BMVA website to host or recommend datasets for researchers to work with.

We have now decided to take a tentative step into this area, starting by collecting metadata – i.e., information about the content and organisation of datasets. If you have opinions about what should be recorded, please drop me a line. My aim is to have something in place on the BMVA website to solicit contributions for archiving before the next issue of BMVA News, where more details should be available.

Adrian Clark
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## BMVA's Thesis Archive

You probably already know that the BMVA archives PhD theses of students studying at UK institutions: in fact, it has theses dating back as far as 1996. One or two other national vision associations have started archiving theses, so the UK is, as usual, leading the way in this.

However, our thesis archive continues to evolve in line with trends in open research. From this year, we are prepared to archive modest amounts of ancillary material such as software and datasets along with theses so that researchers will be able to reproduce the findings more easily. We are also happy to "retro-fit" such ancillary material with theses already in the archive.

The thesis archive is a useful resource. For example, it contains all winners of the Sullivan Thesis Prize. I would like to encourage everyone, including supervisors and students, to submit their theses to the archive. It is quick and easy to do, coming down to not much more than an email and providing a PDF version of the thesis text – see http://www.bmva.org/theses:top for details. Note that you do not have to have just completed your PhD to put your thesis in the archive: a recent submission was a decade after the award of the degree.

Adrian Clark
BMVA thesis archivist
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**Vision for interaction**

**From humans to robots**
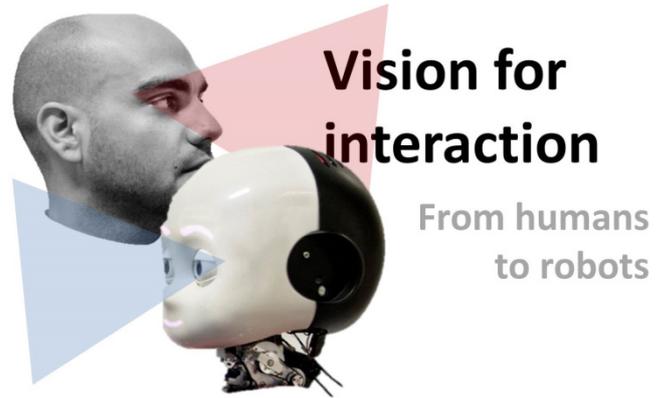
This one-day BMVA symposium will be held in London on 19 October 2016.

Chairs: Nicoletta Noceti (Università degli Studi di Genova) and Alessandra Sciutti (Istituto Italiano di Tecnologia)

Keynote Speakers: Professor Antonia Hamilton (UCL) and Professor Yiannis Aloimonos (Univ. of Maryland).

www.bmva.org/meetings

### Call for contributions

In this highly interdisciplinary one-day workshop we aim at bringing together contributions from the fields of cognitive science, robotics, machine vision and artificial intelligence, to corroborate the discussion on the potential guidelines to design and develop biologically-inspired computational vision models that may favour a natural interaction between artificial systems and humans.

Please submit a short abstract summarizing your contribution, you may include links or pointers to web-based illustrations, demonstration material or papers giving more details. The work can be 'in progress' or recently published, in addition to novel research. If you would like to give a talk, please contact Noceti (nicoletta.noceti@unige.it) and Sciutti (alessandra.sciutti@iit.it) by email by 6 July 2016.

### Topic

Since early infancy, the ability of humans at interacting with each other is substantially strengthened by vision, with several visual processes tuned to support prosocial behaviour. For instance, a natural predisposition to look at human faces or to detect biological motion is present at birth. More refined abilities – as the understanding and anticipation of others' actions – progressively develop with age, leading, in a few years, to a full capability of interaction based on mutual understanding, joint coordination and collaboration.

A key challenge of robotics research nowadays is to provide artificial agents with similar advanced visual perception skills, with the ultimate goal of designing humanoid robots able to recognize and interpret both explicit and implicit communication cues embedded in human movements. These achievements pave the way for the large-scale use of Human-Robot Interaction based applications on a variety of contexts, ranging from the

design of personal robots to physical, social and cognitive rehabilitation.

Areas of interest include but are not limited to:

- Vision neuroscience for interaction
- Computational vision models
- Vision for Robotics and Artificial intelligence
- Human robot interaction
- Vision in social sciences.

This workshop is supported by the European Project CODEFROR (FP7-PIRSES-2013-612555).

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# Plants in Computer Vision



This one-day BMVA symposium will be held in London on 16 November 2016.

Chair: Hannah Dee

**Keynote Speakers**

- Sotirios Tsaftaris, Chancellor's Fellow, University of Edinburgh
- Hanno Scharr, Head of Quantitative Image Analysis, Forschungszentrum Jülich, Germany.

www.bmva.org/meetings

**Call for contributions**

On 16 November 2016 the BMVA will hold a one-day meeting on the topic of "Plants in Computer Vision". New methods in plant biology have led to an explosion in data types and methods of data acquisition, and much of this data is image-based in nature. Computer vision, image analysis and image processing techniques are being applied to more plant data than ever before. We welcome contributions to this workshop in the form of oral presentations, posters or demos. Suggested topics include:

- Plant detection and segmentation
- Plant classification
- Modelling growth and change
- Datasets
- The evaluation of plant-focussed vision systems
- Shape modelling in plant imaging
- 3D systems (both multi-view and dedicated capture, e.g., by laser)
- Microscopy imaging in the plant domain
- X-ray, CT and MRI imaging of plants
- Modelling fine variation between phenotypes
- From phenotype to genotype: vision systems looking at the biological sciences 'pipeline'.

This list is not exhaustive, so if you if you would like to present on anything vision-and-plant related, do submit an abstract. You may include links or pointers to web-based materials, demonstrations or papers giving more details. The work can be 'in progress', recently published or of course novel research. We welcome interdisciplinary work and work from those outside of the mainstream computer vision community.

We have a Google form for submissions online at http://goo.gl/forms/SRTRWNQTWx.
Deadline for submissions is 21 September 2016.

If you have any questions feel free to contact Hannah Dee on hmd1@aber.ac.uk.

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# Further Upcoming Technical Meetings

| Date | Topic | Chairs |
|---|---|---|
| 8 July 2016 | Deep Learning for Computer Vision | Kai Arulkumaran & Anil Bharath |
| 19 Oct 2016 | Vision 4 Interaction: from humans to robots | Nicoletta Noceti & Alessandra Sciutti |
| 16 Nov 2016 | Plants in Computer Vision | Hannah Dee |
| 25 Jan 2017 | Transfer Learning in Computer Vision | Dima Damen |
| 26 Apr 2017 | Security and Surveillance | Nicolas Jaccad, James Ferryman & Tim Ellis |

Full details for each of these meetings have been posted on the BMVA website.

Interested in running your own meeting? If so, contact me at the address below.

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# Conference on Imaging for Crime Detection and Prevention

7th IET International Conference on Imaging for Crime Detection and Prevention (ICDP-16) will be held in Madrid, Spain during 23–24 November 2016. The conference is organised by IET's Vision and Imaging Professional Network. The deadline for submission of full papers is 15 August 2016.

- Location: Universidad Carlos III de Madrid
- Co-Sponsors: BMVA, IEEE, LASIE EU Project, U. Politecnica de Madrid
- General Chair: Sergio A Velastin, Universidad Carlos III de Madrid, Spain
- Co-Chair: Dimitrios Makris, Kingston University London
- Local Chair: Jesús García Herrero, Universidad Carlos III de Madrid, Spain
- Web site: http://www.icdp-conf.org

### Aims and scope

Crime and anti-social behaviour have a significant cost for society and business alike. In the UK alone, anti-social behaviour accounts annually for around £3.4 billion of taxpayers' money with incidents of graffiti and vandalism estimated to cost around £600 million/p.a. Surveillance systems of all kinds are thus extensively deployed in public and private locations to deter, prevent and control. Recent years have also seen an increased awareness on the vulnerability of public spaces to attacks. However, there are serious limitations to the use of conventional monitoring systems where human operators are asked to survey a large number of cameras or go through enormous amounts of recorded material for forensic investigations. Computer-based technologies are increasingly becoming researched in what is now known as video analytics, propelled by advances in processing power, embedded computing, IP-networking technologies, volume storage, cheap cameras, etc. The realisation of such advances in working systems can have a major impact not only on society but also on individual liberty.

This conference follows the successful IDSS (Intelligent Distributed Surveillance Systems) events held in 2003 and 2004 and ICDP 2005, 2006, 2009, 2011, 2013 and 2015 to bring together researchers, industry, end-users, law-enforcing agencies and citizen groups to share experiences and explore areas where additional research and development are needed, identify possible collaborations and consider the societal impact of such technologies.

As in previous years, we expect to have a range of keynote and invited speakers from end-users, industry and EU-funded research projects.

Full papers are invited on all aspects of Imaging Surveillance technologies, from academia, industry, NGOs and others, to be selected for oral presentations or posters through a peer-review system. An indicative, non-exclusive, list of relevant topics is:

- Surveillance systems and solutions (system architecture aspects, operational procedures, usability, scalability)
- Multi-camera systems
- Information fusion (e.g., from visible and infrared cameras, microphone arrays, etc.)
- Learning systems, cognitive systems engineering and video mining
- Robust computer vision algorithms (24/7 operation under variable conditions, object tracking, multi-camera algorithms, behaviour analysis and learning, scene segmentation)
- Human machine interfaces, human systems engineering and human factors
- Wireless communications and networks for video surveillance, video coding, compression, authentication, watermarking, location-dependent services
- Metadata generation, video database indexing, searching and browsing
- Embedded systems, surveillance middleware
- Gesture and posture analysis and recognition
- Biometrics (including face recognition)
- Forensics and crime scene reconstruction
- X-ray and terahertz scanning
- Case studies, practical systems and testbeds
- Data protection, civil liberties and social exclusion issues.

Accepted papers will be published on the IET Digital Library, indexed by Inspec/IEEE Xplore, but only if at least one author registers and presents the work. Authors of exceptional papers may be invited to submit extended papers to be considered for publication in one of the following peer-reviewed journals (IET Computer Vision, IET Image Processing or IET Biometrics). There are delegate fee discounts for authors, students and members of the IET and sponsoring organisations.

Professor Sergio A Velastin
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## STOP PRESS – MIUA 2017

MIUA 2017 will be held at the John McIntyre Centre, Edinburgh, on 11–13 July 2017. MIUA is a UK-based meeting for the communication of research related to image processing and analysis and its application to medical imaging and biomedicine.

### Important dates

Paper submission open:        1 October 2016
Paper submission deadline:    24 February 2017
Author notification:          31 March 2017
Camera-ready papers due:      24 April 2017
Early-bird registration due:  12 May 2017.

For further information see the conference website at: https://miua2017.wordpress.com

Maria del C Valdés Hernández
Chair MIUA 2017
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