BMVA News

The Newsletter of the British Machine Vision Association and Society for Pattern Recognition

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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 1 March 2007.

Contents

[1]The British Machine Vision Association and Society for Pattern Recognition is a Company limited by guarantee, No. 2543446, registered in England and Wales. Registered Office: Granta Lodge, 71 Graham Road, Malvern, WR14 2JS. The Association is a non-profit-making body and is registered as charity No. 1002307.

Editorial: *Welcome Changes*

At the risk of speaking too soon, I have to report that over the past year or so I have been under increasing pressure to include more material in BMVA News. Actually, this is a welcome change from the situation 5 years ago when I took over as Editor. Over the early period I had continual worries about lack of copy, and I felt I had to badger people for news to include. Not that I am now getting crosswords, seasonal puzzles, cartoons or certain other embellishments that might be expected of an organ such as this, but at least I no longer have to phone around quite so much to get enough material. On the other hand, I have long felt the need for a 'Letters to the Editor' section, and now is the time to request this sort of input from readers. Meanwhile, the surge of articles I have been receiving more recently seems mostly to represent increased activity of meetings, conferences and workshops, providing further evidence that vision is an area of perennial growth.

With ever-increasing growth there must ultimately come a time when the subject will fragment into sub-disciplines, and BMVA and *a fortiori* BMVA News will be unable to contain the expansion and scope. Curiously, there is little evidence that this is about to happen – though maybe I am being blind to whole families of disadvantaged and disgruntled readers: if so, perhaps they/you could write in with grievances and suggestions for change, of whatever form.

On another tack, it is good to be able to include in these pages an article on the launch of i-LIDS, a video library being produced by the HOSDB that is aimed at giving academics and other vision practitioners realistic crime-orientated scenarios for testing their algorithms. It has been a long time in the making. I remember first going to meetings at which the types of scenario to be used

were being considered carefully – and that was about 4 years ago. So why has it taken all this time for videos to start being released? To my knowledge there are many good reasons for this: (1) the need for extensive discussions between various parties – Home Office, Security Service, academics, industry, and so on – about what was required; (2) assessment of how to ensure that the results would be practically useful; (3) need to find the best method of release – e.g. tape, CD-ROM, hard disk or website; (4) production using real people, including the public, HO personnel, or even actors; (5) resolution of the legal (especially data protection) aspects of showing real people; (6) need to include the 'all hours–all weathers' concept in the sets of videos – literally covering the weather for a whole calendar year (which is one aspect that makes the videos rigorous and worthy of useful work in the field, rather than merely being sterile laboratory curiosities). Make no mistake, these videos represent a lot of work and thought by many people, and should be taken very seriously; so much is also clear from the fact that they also contain validation sets by which the HO can judge algorithm success and assign appropriate approval ratings.

A necessary question is whether the videos are now so late that the specification is already irrelevant. I would say that the answer is definitely no. Given of course that there are four scenarios (see p. 9), which were never intended to be comprehensive, but rather to represent crucial definitive situations, these amount to stepping stones that we should respect and engage in – all the more so as the *all hours–all weathers* aspect could give us a well-needed but nasty jolt when we get hold of the data! May I wish the Home Office every success with this Library, and urge BMVA Members to make full use of this new valuable resource.

Professor Roy Davies
Editor, BMVA News
email: e.r.davies@rhul.ac.uk

BMVA News – Items for Inclusion

Possibilities for inclusion include anything that members will find interesting and relevant:

- news (awards, events, developments ...)
- reports on meetings
- articles and reviews
- conference information
- BMVA activity information
- crosswords, puzzles, pictures, cartoons, ...
- responses to previous editorials!

BMVA Sullivan Thesis Prize – Call for Nominations

The British Machine Vision Association annually awards a Best Thesis prize (to commemorate the contribution made by the late Professor Geoff Sullivan) to the best doctoral thesis submitted to a UK University, in the field of computer or natural vision.

Recommendations for the prize are considered by a Selection Panel appointed annually by the BMVA Executive Committee. The decision of the Selection Panel is announced at the end of the following July. When possible, the presentation will be made at the conference dinner of the British Machine Vision Conference, held annually during September.

The BMVA Executive Committee now seeks nominations for the Sullivan Prize for theses examined during the calendar year 2006. Please send any nominations to the BMVA Secretary, Dr Andrew Fitzgibbon (secretary@bmva.ac.uk) by the end of February 2007.

Nominated theses should be made available through a web page: the successful author is expected to make his/her thesis available as a PDF for distribution via the BMVA web-site from September 2007 onwards.

For conditions, please see:
http://www.bmva.ac.uk/admin/sullivan.html

Dr Andrew Fitzgibbon
BMVA Secretary
email: secretary@bmva.ac.uk

BMVA Distinguished Fellow 2006

The BMVA Distinguished Fellow award is a special award in order to honour some of the most prominent members of our community in recognition of their services. The award is made every year to one person, and only one person. The BMVA Executive Committee is very pleased to announce that this year's Distinguished Fellow is Professor Maria Petrou from Imperial College, University of London. The award will take place at BMVC 2007 in Warwick.

Dr Majid Mirmehdi
BMVA Chairman
email: chair@bmva.ac.uk

BMVA Inaugural Student Papers Meeting – Call for Papers

Meeting to be held at the British Computer Society, London on 28 March 2007.

This one-day meeting provides an opportunity for students to present their research to an audience of other students and experienced researchers. The intention of the meeting is to allow students to gain experience of paper submission and presentation process in a formal, but less hostile, environment than conferences and journals may be able to provide. It will also provide an opportunity to meet peers from other groups.

The student must be the first author of the paper and the work must have been predominantly carried out by the student. The research, however, need not be mature or complete: papers that report work in progress are entirely acceptable. Submissions are encouraged in any area of computer vision.

Submission and selection of papers

Full papers, formatted according to BMVC guidelines and of no more than six pages in length, should be submitted as PDF by email to t.cootes@man.ac.uk and must arrive no later than 17:00 on 23 February 2007.

Submitted papers will be refereed by a group involving the meeting co-chairs and may be accepted for oral or poster presentation. Authors will be informed of the result of the reviewing process within three weeks of the submission closing date. Detailed information regarding the duration of oral presentations, the size of posters, etc will be given to authors when notified of acceptance.

Prize papers

At the end of the meeting, prizes will be awarded for the best oral and poster papers. The criteria used to reach a decision include the perceived quality of the work, the paper itself, and the oral or poster presentation.

Meeting Chairs

Tim Cootes (University of Manchester)
Adrian Clark (University of Essex)

Dr Adrian Clark
University of Essex
email: alien@essex.ac.uk

Report on BMVA Meeting: Psychophysics and Vision

This one-day BMVA symposium was held on 22 November 2006 at the British Computer Society, London. The meeting was chaired by Neil Thacker from Manchester University and Charles Leek from the University of Wales, Bangor.

The attainment of an artificial sense of vision as acute as that of a human's can reasonably be regarded as the key objective of computer vision orientated research. This meeting was organized in an attempt to unite the computer vision and psychophysics research communities in order to aid progression towards the determination and artificial emulation of the processes involved in human visual perception.

"Show me the errors!" was the take-home message conveyed by Neil Thacker's opening presentation. The talk outlined the great potential for computer vision to be able to identify candidate models of human visual perception, based upon statistical validity. The proposed (system engineering-based) methodology was concerned with taking account of the information required for particular tasks and the accuracy with which any results can be obtained. Without such a rigorous quantitative analysis, it was noted that many computer vision problems become ill-posed, in that no unique solution may exist. Clearly, in attempting to assess the relative validity (and limitations) of any proposed modules of visual processing, such considerations become essential. Whilst the work was presented in the context of mainline computer vision techniques, a case study was presented for non-linear PCA. The interested reader was directed towards the presentation's accompanying document,[2] which discusses the ideas in detail.

Charles Leek presented psychometric evidence from his studies of volumetric shape perception in human vision. One series of experiments aimed to test the nature of human shape representations by examining the efficiency with which subjects were able to match images of segmented object parts to images containing novel 3D object shapes. Results showed that whole-part matching was faster for volumetric component parts than for either open or closed (i.e. bounded) non-volumetric regions of edge contour. Further findings indicated that equivalent performance was found for 2D polygons representing edge contours of planar object surfaces. The second half of the presentation focused on analyzing patterns of subjects' eye movements for single-object recognition tasks. It was shown that a remarkable degree of consistency was exhibited for

[2]http://www.tina-vision.net/docs/memos/2006-008.pdf

subjects' gaze patterns between stimulus encoding and recognition, across different viewpoints and illumination conditions. It was concluded that fixation patterns during object recognition in humans are driven by relatively abstract high-level 3D object representations that seem to encode surface structure.

Bob Fisher's (University of Edinburgh) presentation was concerned with exploiting psychophysical evidence relating to the way in which we select image locations for foveal based attention, to support resource limited machine vision systems. A scheme was proposed in which image feature salience was related to low-level object structure across a hierarchy of object regions. This work was complemented by that of Paul Siebert from the University of Glasgow who presented a fully automated computational mechanism for targeting a biologically inspired space-variant retina, based on the high-level visual content of a scene. The approach was demonstrated on a series of simple visual reasoning tasks, where the system was shown to perform saccadic scene explorations by serially targeting 'interesting' image regions.

Perceiving roughness was the topic discussed by Mike Chantler from Heriot-Watt University, Edinburgh. Psychophysical evidence was presented which suggests that a simple relationship exists between perceived surface roughness and the two well known surface parameters of fractal dimension and rms (root mean square) roughness. Experiments were reported which involved making subjects interactively adjust the parameters relating to a surface's roughness to correspond to the perceived roughness of certain reference surfaces. Using the data from these experiments, a measurement model of perceived roughness was formulated.

Following lunch, Daniel Heesch from Imperial College, London, described his research associated with utilizing contextual information cues for computer vision-based scene interpretation tasks. The presentation reviewed psychophysical evidence which suggested that such contextual information plays a critical role in human vision.

The Geometric Texton Theory (GTT) approach to describing image content was presented by Lewis Griffin from UCL. GTT is a derivative of Gaussian (DoG) based model of image measurement, which involves probing local image structure by computing a vector (a jet) of inner products with a bank of DoG filters up to a specified order. GTT then hypothesizes that the jet conveys enough information to identify the qualitative structure of the specified location by categorizing the point as belonging to one of a finite number of feature types. The main issue discussed was thus how best to partition jet space to describe different feature categories.

The final presentation of the day, given by Alan Johnston from UCL, was concerned with the interaction of visual modules for motion and spatial location interpretation. Whilst motion and spatial location are popularly regarded as being independent properties of visual experience, a number of psychophysical studies were presented which indicated that movement can cause spatial patterns to be displaced in the direction of motion, that movement close to a flash can alter its apparent spatial position and that spatial jitter can arise from smooth motion. Such intermodule effects were proposed to enable psychophysical exploration of systems-level visual processes. One such conclusion was that the interaction of motion and spatial position reflected the operation of a feed-forward model of human motion processing.

Simon Coupe
University of Manchester
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Report on BMVA Meeting: Colour in Vision Analysis

A full-day symposium on aspects of colour in human and machine vision analysis was organised jointly by the Colour Group (GB) and the British Machine Vision Association (BMVA). It was held at the London College of Communication on Wednesday 14 June 2006, and was attended by approximately 45 people. The Co-Chairs were Professor Roy Davies (Royal Holloway, University of London), Professor Lindsay MacDonald (London College of Communication), and Roger Bourdon (Colour Group GB). Ten speakers presented an interesting variety of papers. An excellent lunch and Granville tea added to the quality of the event.

Colour filtering: colour bleeding and related accuracy issues. Roy Davies (Royal Holloway, University of London) opened the proceedings with a study of median filtering as a method of noise suppression in signal and image processing. When applying median filters to the three individual channels of an RGB image, so-called 'colour bleeding' may occur. A preferable alternative is the vector median filter (VMF), which uses a variant of the local median in which a vector is selected to minimise the sum of distances to all other vectors, an approach that trades colour accuracy against reduction of colour bleeding.

Applying nonlinear operations to multichannel images. Adrian Evans (University of Bath) proposed treating multichannel pixels in images as vector quantities rather than applying scalar operations to each individual channel. He showed how pairwise processing could form the basis of a vector ordering scheme, enabling the construction of multichannel morphological operations such as openings and closings, and rank filters.

A hardware independent colour calibration technique. Dimosthenis Karatzas (University of Southampton), working with Sophie Wuerger (University of Liverpool), noted that most colour-normal human observers have no difficulty to adjust a coloured light such that it appears neither red nor green, and neither yellow nor blue. Moreover, these hue judgements are not significantly influenced by language or age and individual differences in colour sensitivity are not reflected in the unique-hue settings. The invariance of unique hue judgements could therefore be used to develop a colour calibration technique for display devices, eliminating the need for an external calibration standard or a measurement device.

Colour characterisation and calibration of a digital SLR camera. Michael Pointer (National Physical Laboratory), working with Carl Jones and Peter Plassmann (University of Glamorgan) explained how recent advances in digital camera performance suggest that off-the-shelf SLR cameras may, after calibration, be suitable to measure wound colour precisely enough for diagnostic purposes. Infection in chronic wounds such as leg ulcers is usually accompanied by inflammation which manifests itself in a change of wound colour. If the change from the healthy pink/light red hue of granulation tissue to what clinicians describe as 'angry red' could be detected at an early stage, the deterioration of the wound, pain to the patient and treatment costs could be minimised. The paper outlined a procedure for the characterisation of a camera's colour rendition and its subsequent colour calibration.

A C++ colour space template library. Brahima Belem and Peter Plassmann (University of Glamorgan) described a new approach to store and manipulate colour information using an image processing library implemented in ANSI standard C++. In contrast to some existing code libraries the implementation closely follows the CIE standard for colour space manipulations.

Colour assessment in dentistry. Stephen Westland (University of Leeds) described a system for assessment of tooth whiteness, developed in collaboration with Colgate-Palmolive. The use of an imaging system to assess the efficacy of tooth-whitening products relies upon: (i) precise, and preferably accurate, colorimetric measurements; (ii) an appropriate whiteness scale. A series of psychophysical and modelling experiments has led to development of a new whiteness index for tooth assessment. Further applications in dentistry for the imaging system include the assessment of gingivitis and gloss.

Attention-based colour correction. Fred Stentiford (University College London) explained how the colour of illumination in a scene can have a dramatic affect on the performance of image retrieval systems, because different imaging devices produce widely different responses, whereas human vision possesses an ability to interpret scenes without being troubled by the brightness or colour of the illumination. He described a new approach to illuminant estimation and correction for derivation of similarity estimates that are independent of illumination, based on the notion that colour constancy arises in human vision as a result of experiencing visual similarity rather than some absolute colour correctness.

Colour texture exemplars for defect detection in random textures. Xianghua Xie and Majid Mirmehdi (University of Bristol) presented an approach to detecting and localizing defects in random colour textures on ceramic tiles, requiring only a very few defect-free samples for unsupervised training. Novelty detection on colour texture surfaces was performed by examining the lower bound of normal sample likelihoods on the multiscale defect map of an image under inspection. Three extensions of the grey-level texem model to colour images were compared, two involving colour space factorisation and the other treating intraspectral and interspectral interactions simultaneously.

Fatal flaws: uncertainty in the interpretation of colour in CCTV images. Lindsay MacDonald (London College of Communication) described how, in a sensational murder trial, the prosecution produced CCTV footage showing a car driving along the street in a city centre. Analysis of still image frames extracted from the sequence sought to answer the simple question: "Is this car blue?" The answer turned out to be much more complicated than expected, and ultimately raised fundamental issues about uncertainty and the value of surveillance imagery. Specific issues were the non-uniformity of the scene illumination from multiple sources; gloss and directional reflectance of metallic-flake paintwork; poor performance of the camera, and losses within the CCTV recording system. These factors caused excessive degradation of the image in spatial resolution, colour fidelity, and noise.

Case studies from the NCS Colour Centre. Marilyn Sturgeon (NCS Colour Centre) described several case studies using the Natural Color System (NCS): "Is the

sky blue?" – a photographic study of the colours of the sky, cross referenced to NCS; "Colours of India" – studies of The Golden, White, Pink and Blue cities using photography; "Colours of Korean traditional costume" – analysis in NCS colours using photographs.

Selected papers from the meeting will be published in a special issue of *The Annals of the BMVA*.

Professor Lindsay MacDonald
London College of Communication
email: l.macdonald@lcc.arts.ac.uk

Manuel Trucco appointed to a Chair at Dundee

Emanuele (Manuel) Trucco obtained his laurea (MSc) in 1984 and his PhD in 1990 – both in Electronic Engineering at the University of Genova, Italy. His PhD thesis addressed "Generation and use of functional models for 3D vision". Since then, he has worked at the EURATOM Joint Research Centre (Ispra), and at the Universities of Genova, Edinburgh (with Bob Fisher) and Heriot-Watt. He joined Heriot-Watt in 1994 as a lecturer, and has just been appointed to a Chair in the School of Computing at the University of Dundee, starting in May 2007.

His research has impacted a good number of applications of computer vision, including 3D inspection, sub-sea robotics, fish farming automation, and more recently immersive communications, surveillance and retinal image analysis. He has had high levels of support from UK research councils, the EU, industrial funds and charities, including the British Council and the Royal Society.

Manuel was programme chair of BMVC in 1996 and 2006, and has served regularly on a number of vision conference committees. In addition, he has served as Co-Editor in Chief of the IEE Proceedings on *Vision, Image and Signal Processing*, and is currently Associate Editor for IEEE SMC and PAA.

Over his 22 years in computer vision, Manuel has become well known for friendly help and collaboration and also for his book on 3D computer vision: I am sure many of you would like to join me in passing him our warm congratulations on his forthcoming position!

Professor Roy Davies
Editor, BMVA News
email: e.r.davies@rhul.ac.uk

Vision Spinouts top Business Competition!

Vision spinouts top Research Councils' annual business plan competition! Out of seven finalists (from an original entry of 88), Warwick Warp won the Research Councils' annual business plan competition (£25,000). See: http://www.epsrc.ac.uk/PressReleases
/2005-06BusinessPlanCompetitionWinner.htm

Totallytextures (Heriot-Watt spinout) and Eykona (Oxford spinout) were runners up (each winning £10,000). See:
http://www.epsrc.ac.uk/Content/Documents
/BusinessPlanCompetition
/BusinessPlanCompetitionFinalists.htm

The above information was announced on Thursday 7 December 2006 at the Research Councils' annual business plan competition final.

Professor Mike Chantler
Heriot-Watt University
email: m.j.chantler@hw.ac.uk

Computer Vision Summer School 2007

Funding is being sought to organise the next Summer School and to sponsor the free attendance of EPSRC students. The dates and location of the Summer School will be announced as soon as funding is (hopefully) approved. Keep a look out for further information in *BMVA News*, on our website, and via our e-mailshots.

Dr Majid Mirmehdi
BMVA Chairman
email: chair@bmva.ac.uk

BMVC – Call for Papers

British Machine Vision Conference, 10–13 September 2007, Warwick.

http://www.dcs.warwick.ac.uk/bmvc2007/

General Chairs: Abhir Bhalerao and Nasir Rajpoot

The British Machine Vision Conference (BMVC) is the main UK conference on machine vision and related areas. Organised by the British Machine Vision Association, the 18th BMVC will be held on 10–13 September 2007 at the University of Warwick, Coventry.

Papers will be refereed on their originality, presentation, empirical results, and quality of evaluation. All papers will be blind-refereed, normally by three members of the international programme committee.

Conference topics cover theory and applications and include, but are not limited to:

- Statistics and machine learning for vision
- Model-based vision
- Stereo, calibration, and geometry
- Image processing techniques and methods
- Object recognition
- Texture, shape, and colour
- Motion, flow and tracking
- Video analysis
- Segmentation and feature extraction
- Vision for visualisation and graphics
- Person, face, and gesture recognition
- Document processing and recognition
- Biomedical applications

BMVC 2007 will be a single-track meeting with oral and poster presentations. The proceedings will be available to delegates at the conference in hard copy and on CD. In addition to the contributed papers, BMVC 2007 will include presentations by invited speakers: Professor Hans Knutsson of Linköping University and Professor Mubarak Shah of University of Central Florida.

A pre-conference tutorial on visual simultaneous localisation and mapping (SLAM) will be given by Drs Andrew Davison (Imperial College, London), Andrew Calway and Walterio Mayol (University of Bristol). Delegates will be able to view poster presentations and see demonstrations by both industrial exhibitors and researchers. Delegates are also invited to stay to attend the one-day workshop on Friday 14 September which will be organised by the EPSRC Vision, Video and Graphics Network.

Important dates

Deadline for paper submission: 23 April 2007
Notification of acceptance: 18 June 2007
Deadline for camera-ready copy: 20 July 2007
Conference: 10–13 September 2007.

Tutorial day

Monday 10 September.
"Visual SLAM", to be presented by Dr Andrew Davison, Imperial College, London, and Drs Andrew Calway and Walterio Mayol, University of Bristol.

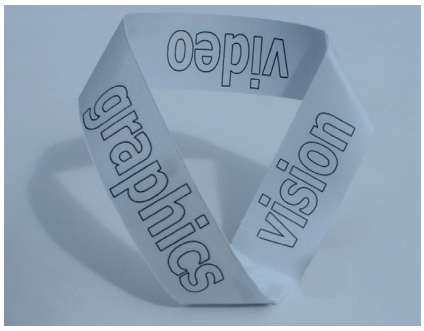
Workshop

Friday 14 September. One-day VVG workshop (see following page).

Abhir Bhalerao and Nasir Rajpoot
University of Warwick
email: abhir.bhalerao@dcs.warwick.ac.uk
nasir@dcs.warwick.ac.uk

Important note regarding this and other conference information: to be sure of getting the very latest updated/corrected information, BMVA Members should always cross-check with the relevant website. – Ed.

Vision, Video and Graphics Workshop



One-day workshop, to be held in association with BMVC 2007.
Friday 14 September 2007
Warwick University

Co-chairs

- Peter Hall, University of Bath
- John Robinson, University of York
- Roland Wilson, University of Warwick: local chair

The VVG'07 one-day workshop is to take place immediately following the British Machine Vision Conference 2007. For details of BMVC and the workshop see:
http://www.dcs.warwick.ac.uk/bmvc2007/index.html

The general workshop theme is the convergence of Vision, Video, and Graphics. Specific areas of interest include, but are not limited to:

- Image based rendering and modelling
- Content based information retrieval for images and video
- Video conferencing
- Augmented reality and HCI
- Graphic insertion into photos and video
- Vision methods in image and video compression
- Non-photorealistic rendering from photos and video
- Video visualisation
- Animation dynamics

Please send you contributions to either of the chairs. Selected high quality papers will be invited to submit to the Annals of the British Machine Vision Association. The VVG Network of Excellence is sponsored by EPSRC.

Dr Peter Hall
University of Bath
email: pmh@cs.bath.ac.uk

Vision, Video and Graphics Summer School 2007

20–21 September, University of Bath

The VVG network is pleased to announce a summer school dedicated to the convergence area.

- Designed for PhD students, typically in year 1 or 2, from Vision, Video, or Graphics labs.
- A two-day school, delivered by researchers active in the field.
- A practical lab session to re-enforce lectures.
- A poster session to help build presentational skills: a prize for the best poster.
- Open to students from both UK and non-UK labs.
- The cost of £250 per student includes accommodation and meals.
- EPSRC sponsored, some bursaries are available (UK students on EPSRC grants only).

The syllabus

- Image based rendering and cameras: Andrew Fitzgibbon (Microsoft Research)
- The Industrial Face: Oliver Grau (BBC)
- Content Based Retrieval: Andrew Zisserman (Oxford University)
- Human Model Motion Capture: Aphrodite Galata (Manchester)
- Point Based Rendering: Markus Gross (ETH Zurich)
- Geometric Model Acquisition: Steve Maybank (Reading University)
- Non-photorealism from Images: Andrew Bangham (UEA)
- Light and Shadow: Graham Finlayson (UEA)
- Tracking: Richard Bowden (Surrey University)
- Advanced Interaction: John Robinson (York)
- Statistical Models and Methods: Andrew Blake (Microsoft Research)

For further information, visit the website:

http://www.cs.bath.ac.uk/VVGschool

Places are limited, so please send early expressions of interest and enquiries about bursaries to either of the organisers:

Peter Hall and John Collomosse
University of Bath
email: pmh@cs.bath.ac.uk
jpc@cs.bath.ac.uk

Research Funding available from the VVG Network of Excellence!

The VVG Network of Excellence exists to fund cross-disciplinary research in the intersection of Vision, Video and Graphics. Typically a researcher from a laboratory of one kind (vision, video or graphics) is funded to spend time in a laboratory of another kind. Students, Research assistants, and academics have all been supported. Researchers can come from or go to industry or overseas. The network is able to at as 'marriage broker' between laboratories.

VVG can fund the living cost, accommodation, travel and out-of-pocket expenses (such as loss of tuition fees) for the researcher. Apply for as much as you can justify: typical awards are a few thousand pounds.

Anyone may apply. Administration is very light – just couple of sides of A4. Applications are processed by rapid (we emphasise rapid) peer review.

For details on how to obtain VVG funding, contact Peter Hall.

Dr Peter Hall
University of Bath
email: pmh@cs.bath.ac.uk

Launch of i-LIDS by HOSDB

Imagery Library for Intelligent Detection Systems

The Home Office Scientific Development Branch (HOSDB) launched the i-LIDS library – the new government standard for video based detection systems (VBDS) – at the IET, Savoy Place, London on 20 November. The event was attended by representatives from academia, manufacturers and government end-users, providing an excellent opportunity for discussions on VBDS development and user requirements. Much comment was made of the standards based approach of i-LIDS and how this represented the way forward for the industry.

i-LIDS was produced by HOSDB, as part of a programme of research and development jointly funded and directed by the Home Office and Security Service. Alan Pratt, Director of HOSDB, formally launched i-LIDS and said it was a robust broad-based tool which would allow those interested in VBDS to explore the art of the possible.

Launch presentation of the i-LIDS datasets to delegates from the machine vision community.

i-LIDS is an imagery library containing real-world CCTV video footage based around four scenarios:

1. Abandoned Baggage Detection
2. Parked Vehicle Detection
3. Doorway Surveillance
4. Sterile Zone Monitoring

Each of these scenarios has been developed by working with government end-users of VBDS to represent their requirements and to simulate the operational conditions under which detection systems are required to perform. For each scenario alarm events are defined which VBDS are required to recognise. An alarm event may be, for instance, a person passing through a monitored doorway or a vehicle parking in a defined zone.

i-LIDS abandoned baggage detection scenario.[3]

For each scenario two public datasets each containing between 18 and 24 hours of footage are now available for academics and VBDS manufacturers to purchase. The public training dataset is intended to help research

[3]This picture (together with three others below) is definitely not typical of those in the i-LIDS dataset. Indeed, abandoned baggage will often be scarcely visible between the passengers! – Ed.

on the development of algorithms, with the public test dataset comprising an equivalent amount of independent footage which can be used to verify the performance of systems. Each dataset is provided on a 500GB USB2/Firewire external hard drive, in either Mac or NTFS format.

i-LIDS parked vehicle detection scenario

i-LIDS doorway surveillance scenario

i-LIDS sterile zone monitoring scenario

Imagery is indexed at event level to assist with searching for requisite footage and event authentication. The parked vehicle training dataset additionally contains a low-level frame-based annotation of a significant proportion of the dataset which can be used to validate object tracking algorithms.

By releasing such an amount of real-world footage to the machine vision community, the Home Office is hoping to stimulate the development of more robust machine vision algorithms capable of meeting UK national security requirements.

The public datasets from i-LIDS are available via an application form in the CCTV and Imaging section on the HOSDB web site:

http://science.homeoffice.gov.uk/hosdb/

HOSDB also plan to carry out VBDS evaluations against each scenario starting in spring 2007 using a third "private evaluation" dataset. Systems meeting a set level of performance will be listed in a catalogue of approved security equipment used by government.

System developers wishing to apply for evaluation are required to report the performance of their systems on the appropriate test dataset on the evaluation application form also available on the above web site.

i-LIDS was produced by HOSDB, as part of a programme of research and development jointly funded and directed by the Home Office and Security Service.

Paul Hosmer
Home Office Scientific Development Branch
email: paul.hosmer@homeoffice.gsi.gov.uk

AVSS 2007 – Call for Papers

The IEEE International Conference on *Advanced Video and Signal based Surveillance* (AVSS 2007) will be held on 5–7 September 2007 at Queen Mary, University of London (QMUL), London E1 4NS.

http://www.avss2007.org

Conference Chair: Dr Andrea Cavallaro (QMUL)

Background and goals

AVSS is the IEEE conference series on video and signal based surveillance. AVSS was started in 1998 (Genoa, Italy). Following meetings were held in 2001 (Kingston, UK), in 2003 (Miami, USA), in 2005 (Como, Italy), and in 2006 (Sydney, Australia). AVSS 2007 will be held in London on 5–7 September 2007. AVSS is a forum of reference for the field and offers the opportunity to meet and foster collaboration. AVSS has a tradition of participation from the worlds of research, industry, and relevant government agencies. AVSS welcomes contributions in traditional disciplines such as signal processing, image and video processing, audio processing, pattern recognition, and computer vision,

and it also gives unique emphasis to cross-disciplinary and visionary papers. High-quality contributions are sought on underlying theory, methods, systems, and applications. The list of topics of interest includes, but is not limited to:

- 3D vision for surveillance applications
- Activity monitoring
- Audio surveillance
- Behaviour analysis
- Chemical/biological signal processing
- Civilian applications
- Digital watermarking
- Face detection and recognition
- Gesture and action recognition
- Hardware and software architectures
- Heterogeneous sensor processing
- Image and video archival and retrieval
- Infrared imaging
- Interaction modelling
- Military applications
- Motion detection and object tracking
- Multi-camera calibration
- Multi-sensor data fusion
- Object classification and recognition
- Object–background segmentation
- Omnidirectional vision
- Pattern recognition for surveillance applications
- Perceptual interfaces
- Performance evaluation of surveillance systems
- Sensor networks for surveillance applications
- Sensors and early vision
- Statistical methods and learning
- Threat assessment
- Video analysis and event recognition
- Visualization tools for surveillance applications

Important dates

Paper submission: 28 February 2007
Notification to authors: 15 May 2007
Camera ready papers due: 10 June 2007

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Free tickets for IPOT 2007

Every year, the Image Processing and Optical Technology (IPOT) exhibition takes place in the National Exhibition Centre in Birmingham. This exhibition brings together manufacturers, users and researchers in the fields of image processing and vision systems and highlights the latest technical developments and state-of-the-art products.

The next event will be on 14–15 February 2006 and, as usual BMVA will be supporting the event. There will also be a BMVA stand in the main exhibition hall to promote the community and provide live demonstrations of some of the exciting work being undertaken by our members.

To further support the event we are offering a free ticket for IPOT with every issue of the December BMVA newsletter. We would encourage you to visit IPOT and the BMVA stand to see the demonstrations and find more about recent BMVA activities.

For more details about the Exhibition visit the IPOT website: http://www.ipot.co.uk/

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Book Review – *Human Identification Based on Gait*

Mark S. Nixon, Tieniu Tan, Rama Chellappa, Springer International Series on Biometrics, August 2005, ISBN 0-387-24424-7, pp. 144, $89.00

They say never judge a book by its cover, but I think an exception can be made. This slim volume, plain green hardback with strong white lettering and a descriptive, no-nonsense title, impart a strong first impression – 'we mean business'. Combined with a distinguished trio of authors, M. Nixon (Southampton), T. Tan (CAS,[4] Beijing) and R. Chellappa (Maryland), the book, *Human Identification Based on Gait*, raises high expectations.

The content and presentation do not disappoint. First, an in-depth review and description of the various gait databases available. This extends to coverage of such practical problems as filming issues and laboratory layout. Southampton's 'Soton' receives the most coverage, although UCSD, NIST, CASIA and others are also described. This attention to detail extends to the appendices, which contain copies of the acquisition and consent forms used during the construction of the 'Soton' database.

A treatment of gait extraction techniques follows. The authors divide these into two categories, silhouette-based approaches and model-based approaches, and

[4]Chinese Academy of Sciences

present a chapter on each. The review of silhouette approaches, which amounts to 30% of the text, covers a wide range of techniques from area masks to velocity moments, spatiotemporal analysis and the CAS Institute of Automation's 'Procrustes' shape analysis method. After the gait has been extracted it must be analysed and matched. HMM and similar methods are discussed, although not in the same detail as earlier sections.

The model-based chapter covers the use of human body models of various complexities and constraints, but focuses on work at Southampton and CAS. The final chapters cover issues such as view invariance in gait recognition and the future challenges of the field. Overall, the topics of data acquisition and gait extraction are covered in considerable detail while the later steps of recognition and analysis receive less space.

The final pages of the book provide an excellent list of references. Usefully, these are organised by topic, and cover everything from biomechanics to psychology. These alone make the book worth a look.

The subject is described as the forgotten biometric, worthy of a place alongside other recognition tools such as face and fingerprint recognition, but with the ability to work at a distance and using poor quality CCTV video. Applications discussed are not limited to the currently topical defence, crime and 'Homeland Security', but reach to the medical and computer game industries.

Although the authors discuss the potential of gait as a biometric, the case is not strongly made in this book. Questions as to the inherent power of gait as a biometric tool are not answered with the precision of other sections. It is known, for example, that fingerprints and iris patterns may be used to identify a person with a statistical likelihood of billions to one. However, it appears that equivalent statistics for gait are not available.

Despite these shortcomings, which are likely due to the youth of the subject, the book is a thorough and indispensable resource. Part tutorial, part reference, the structure seems to aim towards a 'how-to' guide of gait extraction, and should be on every gait practitioner's bookshelf. However, with less than 200 pages, brevity is the book's most notable defect. I am sure most readers will be left wanting more.

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Meeting on Vision-based Biometrics

One-day BMVA symposium at the British Computer Society, 5 Southampton Street, London, WC2E 7HA, on 14 February 2007.

www.bmva.ac.uk/meetings

Chairs

Dr Chris Solomon (University of Kent)
Professor Mark Nixon (University of Southampton)

Programme

10.00 Registration and coffee
10.25 Welcome and Introduction
10.30 Towards gait recognition using non-linear transient computation. N. Crook (Oxford Brookes)
11.00 A unified approach to 3-D face and ear recognition. T. Theoharis *et al*. (University of Athens)
11.30 Landmark detection in 2.5-D facial scans. P. Nair and A. Cavallaro (Queen Mary and Westfield)
12.00 Fast generation of facial composites through statistical learning and evolutionary search. C.J. Solomon *et al.* (University of Kent, Canterbury)
12.30 Lunch
13.30 Recognition from body language. W. Clocksin and P. Torr (Oxford Brookes)
14.00 Latent identity variables: Generative models for face recognition. S.J.D. Prince and U. Mohammed (University College London)
14.30 Robust Image Features from Complex Wavelet Phases. L. Middleton and M. Nixon (Southampton University)
15.00 Tea and Coffee
15.20 Examination of Interoperability of ISO Finger Minutiae Templates. Alex I. Bazin, Tony Mansfield (National Physical Laboratory)
15.50 Biometric identification of non-compliant subjects at range. Ian Firth (LOGICA-CMG)
16.20 Closing remarks and finish

The usual BMVA registration arrangements apply: see the registration sheet circulated with this issue of BMVA News.

Simon Prince
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VIE 2007 – Call for Papers

Visual Information Engineering 2007 – *Bridging the Gap between Theory and Applications*. 25–27 July 2007, Royal Statistical Society, London

Chair

Sergio A Velastin, Kingston University

Organising committee

- Farzin Deravi, University of Kent
- Paola Hobson, Motorola, UK
- Ebroul Izquierdo, Queen Mary, University London
- Li-Qun Xu, BT Research and Venturing, UK
- Yiannis Kompatsiaris, Informatics and Telematics Institute, Greece
- John Robinson, University of York
- Roy Davies, Royal Holloway, University of London

Conference theme

The IET Visual Information Engineering conference 2007 (VIE 2007) addresses the fundamental elements of image, video and graphics research and development. Key technical areas include the growing convergence of computer graphics and computer vision/image processing which is an increasingly important area in commercial multimedia applications development. The conference provides an ideal opportunity for researchers, practitioners and educators in the VIE community to share results and advancements in a high quality, peer reviewed environment, and creates an important networking forum in which academic and industrial participants can discuss the future of VIE technologies and the convergence of imaging technologies with other domains.

Topics of interest include, but are not limited to:

1. Visual information retrieval. Image and video interpretation, low-level and semantic based classification, annotation and retrieval.
2. Image and video analysis, segmentation, motion analysis and tracking and event detection for surveillance.
3. Graphics, visualisation, animation, rendering, image and video-based model synthesis, synthetic image generation and manipulation.
4. Architectures and implementation, image acquisition, hardware.
5. Block-based/scalable coding and compression, transcoding and streaming.
6. Image and video communication, networking, low bit-rate and wireless technology, high definition video transmission and consumer devices for visual media consumption.
7. Visual media management, multimedia database management, watermarking, privacy, and digital rights management.
8. Applications: TV, HDTV, D-Cinema, video and mobile communications, robotics, medical, forensic, security and surveillance, industrial inspection, handwriting analysis/recognition, post-production, biometrics, virtual and augmented reality, advanced and immersive telepresence, and computer/video games.

Paper Submission and Publication

Prospective authors are invited to submit full papers of up to 6 pages using the on-line system at http://conferences.theiet.org/vie2007. Accepted papers will be published in the Conference Proceedings published by the IET. Exceptional papers will be invited for consideration for a Special Issue of the IET Proceedings on Vision and Image Processing.

Important Dates

12 February 2007: Submission of full papers
2 April 2007: Notification of acceptance
30 April 2007: Submission of camera-ready papers

Call for workshops and special sessions

Proposals for tutorials of 1 hour duration on emerging fundamental topics of Visual Information Engineering are welcomed. A tutorial proposal of 4–6 pages describing the topic, expected benefits of the tutorial, and a short biography of the proposed tutor may be submitted using the on-line system at:

http://conferences.theiet.org/vie2007.

Prospective tutorial proposers may discuss their proposal in advance with John Robinson (email: jar11@ohm.york.ac.uk).

Proposals for conference special sessions on new research areas related to Visual Information Engineering are also welcomed. A special session proposal of 4–6 pages describing the topic, objectives of the session, and list of proposed contributors, may also be submitted using the on-line system. Prospective special session proposers may discuss their proposal in advance with Yiannis Kompatsiaris (email: ikom@iti.gr).

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The Colour Group Awards 2007

The Colour Group (Great Britain) has a scheme of awards to assist those who wish to attend conferences in the fields of art, colour science and colour imaging. Applications for Palmer awards are invited from students and researchers in these fields who reside in the UK.

The Palmer awards (8) are intended for both postgraduate students and post-doctoral workers. Each award is valued at about £500. A Panel of Trustees will carry out the selection of suitable recipients. A submitted abstract of the presentation (paper/poster) to be given at the conference or, in the absence of a formal presentation, a reasoned personal statement, outlining the value of the conference to the attendee, will be taken into account in addition to other material supporting the application.

Application forms can be downloaded from the Colour Group website (www.colourgroup.org). The site lists forthcoming conferences in the field of colour. A completed form and supporting material should be collected in a single Word document and sent by post or email to: Professor J D Moreland, Panel of Trustees, 1 Uttoxeter Road, Stone, Staffs, ST15 8QX. A note should be emailed independently by your supervisor/institution to confirm your student/post-doc/UK residence status.

The application deadline is Friday 2 March 2007.

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Masters Programme on Vision and Robotics

The School of Engineering and Physical Sciences at Heriot-Watt University has started VIBOT, a MUNDUS international 2-year masters on vision and robotics sponsored by the EU. VIBOT is run by Heriot-Watt University, the University of Bourgogne in France and The University of Girona in Spain.

For further information see www.vibot.org, or contact Emanuele Trucco, VIBOT Course Co-director at:

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