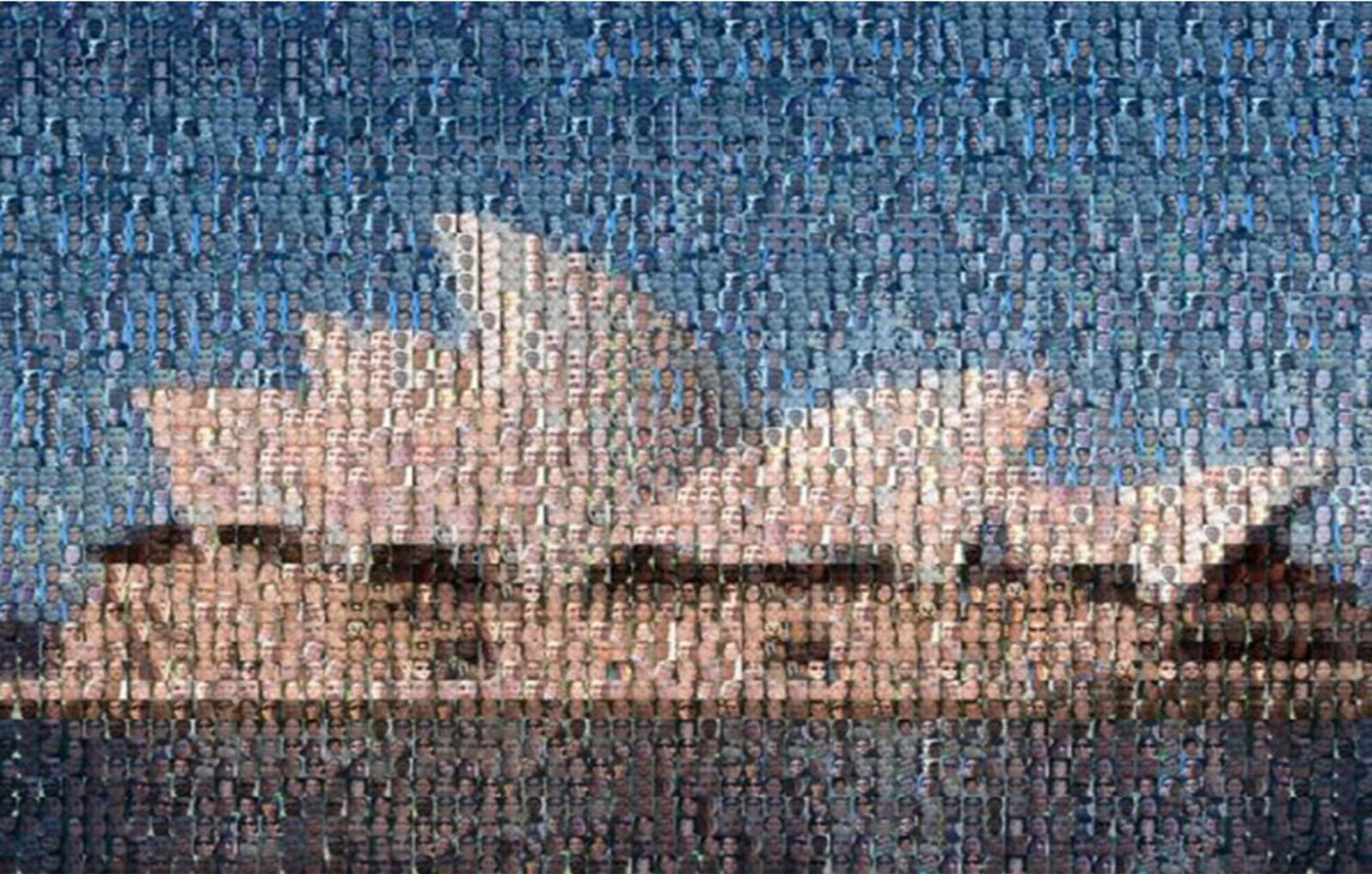




UNFAMILIAR FACE IDENTIFICATION GROUP



CONFERENCE PROGRAM 2016

Monday - Wednesday
8-10 February



UNSW
THE UNIVERSITY OF NEW SOUTH WALES

Introduction

Welcome to the Unfamiliar Face Identification Group Meeting 2016.

At the end of last year's meeting there was a feeling that we needed a name for our group which reflected our shared interests – hence our new name, UFIG, and our new logo.

As always we hope the meeting will provide an informal setting where the latest research findings can be revealed in brief and accessible presentations, followed by wide ranging discussions of the practical, legal and theoretical implications of the work. We are keen to receive presentations from system users and developers as well as researchers.

In the last few years Australia has emerged as a world leader in this type of applied face processing research. This research meeting will provide the opportunity for everyone to contribute to the continued success of the collaborative work that has been taking place in this field.

Richard Kemp, David White & Tanya Wayne

February 2016



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Schedule

Time	Topic	Presenter
Monday 8th February		
UNSW Law Building, Ground Floor, G02		
Keynote Presentation 1		
5.30 - 6.10pm	Deliberate disguise in face identification	Rob Jenkins (York)
6.10 - 6.30pm	Discussion	
7.00pm Dinner at Cookhouse, Randwick (must RSVP beforehand to attend)		

Tuesday 9th February		
UNSW Law Building, Ground Floor, G02		
9.00 - 9.10am	Introduction	Richard Kemp (UNSW)
Keynote Presentation 2		
9.10 - 9.50am	State-of-the-art automated face recognition	Thorsten Thies (Cognitec)
9.50 - 10.10am	Discussion	
Session 1		
10.10 - 10.20am	Perceived similarity: Implications for unfamiliar face matching	Harold Hill (UOW)
10.20 - 10.30am	Discussion	
10.30 - 10.40am	An update on Defence Science & Technology Group's unfamiliar facial identification and face recognition research	Rebecca Heyer (DST Group)
10.40 - 10.50am	Discussion	
10.50 - 11.30am Morning break		
Session 2		
11.30 - 11.40am	Should we select forensic examiners for their face matching ability?	David White (UNSW)
11.40 - 11.50am	Discussion	
11.50 - 12.10pm	OSC/FISWG update & FACET update	Patricia Moss (DFAT)
12.10 - 12.20pm	Discussion	
12.20 - 12.30pm	An update of FISWG's facial image comparison: Image capture conditions and technical considerations affecting morphological analysis	Jason Prince (AFP)
12.30 - 12.40pm	Discussion	
12.40 - 12.50pm	Training to match faces viewed from above	Simone Favelle (UOW)
12.50 - 1.00pm	Discussion	
1.00 - 1.50pm Lunch		
Session 3		
1.50 - 2.00pm	Update on international facial image standards	David Chadwick (DFAT)
2.00 - 2.10pm	Discussion	
2.10 - 2.20pm	Facing the facts: A review of professional training for facial image comparison	Alice Towler (UNSW)
2.20 - 2.30pm	Discussion	
2.30 - 2.40pm	Legal issues update: Reliability, validation and expert reports	Mehera San Roque and Gary Edmond (UNSW)
2.40 - 2.50pm	Discussion	
2.50 - 3.00pm	Biases in image memory for familiar and unfamiliar faces: The cost of familiarity?	James Dunn (UNSW)
3.00 - 3.10pm	Discussion	

Time	Topic	Presenter
3.10 - 3.40pm Afternoon break		
Session 4		
3.40 - 3.50pm	Matching faces all day long: Feedback interacts with intrinsic motivation to improve detection of rare targets	David White (UNSW)
3.50 - 4.00pm	Discussion	
4.00 - 4.10pm	Bias in facial age estimation	Tamara Watson (WSU)
4.10 - 4.20pm	Discussion	
4.20 - 4.30pm	Victoria Police iFACE Facial Recognition System – a law enforcement end user’s perspective	Cameron Tullberg and Bradi Owens (Vic. Police)
4.30 - 4.40pm	Discussion	
4.40 - 4.50pm	Concluding Comments	Richard Kemp (UNSW)
4.50 - 5.30pm General Discussion		
6.00pm Dinner at Whitehouse, UNSW (must RSVP beforehand to attend)		

Time	Topic	Chair
Wednesday 10th February		
UNSW Law Building, Ground Floor, G02		
Round Table Meeting		
9.30 - 10.30am	Session 1	David White (UNSW)
10.30 - 11.00am Morning Break		
11.00 - 12.30pm	Session 2	Richard Kemp (UNSW)

Roundtable Meeting

All are welcome to attend the Roundtable. The Roundtable sessions are based around a number of discussion topics that have been proposed by members. The proposer will briefly introduce their topic and then chair the discussion that follows.

Topics include:

- Implementing an inspection workflow for unfamiliar faces.
- The advantages/disadvantages of using a comparison checklist versus a comparison reference list.
- Benefits of summarising recent research to inform policy/procedural guidelines.
- The adoption practice in facial reporting.

Keynote Presentation 1

Monday, 8 February 2016

5.30 - 6.30pm

Dr. Rob Jenkins

University of York

Dr. Rob Jenkins obtained a degree in Cognitive Science at the University of Westminster, followed by a PhD at the Psychology department of University College London. His research interests include face perception and social interaction. He has published on these topics in *Science*, *Current Biology*, *Psychological Science*, and other journals. In 2007 he was awarded the BAAS Joseph Lister prize for science communication. In 2012 he was awarded the RSE/Sir Thomas Makdougall Brisbane early career medal for Physical Sciences. Rob Jenkins is a BPS Chartered Psychologist and a member of the RSE Young Academy of Scotland. In 2013 he was appointed Reader in Psychology at the University of York, UK.

Title: Deliberate disguise in face identification

Talk summary: Psychological research has established that facial image comparison is difficult for unfamiliar faces and easy for familiar faces. Those conclusions are robust, but they are based on situations in which the people being identified cooperate with the effort to identify them. The criminal situation is very different. Rather than cooperating, people may be motivated to thwart identification efforts by manipulating their appearance. In this talk, I will distinguish between two forms of disguise - evasion (trying not to look like oneself) and impersonation (trying to look like a specific target person). I will report identification accuracy for different methods of disguise and consider the prospects for improving performance.

Keynote Presentation 2

Tuesday, 9 February 2016

9.10 - 10.10am

Dr. Thorsten Thies

*Director Algorithm Development
Cognitec*

After receiving his Ph.D. in Mathematics from the University of Karlsruhe (KIT) in Germany, Dr. Thorsten Thies joined Cognitec in 2003. Since then he has made numerous contributions in advancing Cognitec's core technology, mainly in the areas of face detection and face recognition. He has been leading the algorithm development team at Cognitec since 2015.

Title: State-of-the-art automated face recognition

Talk summary: This talk will discuss a taxonomy of face recognition applications, ideal features of a face recognition algorithm, testing a face recognition system, today's automated face recognition approaches, how our knowledge of human vision inspires recognition algorithms, and how video data can be exploited.

Abstracts: Session 1

PERCEIVED SIMILARITY: IMPLICATIONS FOR UNFAMILIAR FACE IDENTIFICATION?

Harold Hill

School of Psychology, University of Wollongong

How do humans encode faces visually? This presentation will consider this fundamental unanswered question with an emphasis on three-dimensional shape. Performance when matching across lighting and viewpoint shows that performance is not just a function of physical image differences. Methods intended to quantify perceived similarity between faces will be outlined and data on their predictive value and validity presented. Applicability to the problem of face matching and future directions will be discussed.

AN UPDATE ON DEFENCE SCIENCE & TECHNOLOGY GROUP'S UNFAMILIAR FACIAL IDENTIFICATION AND FACE RECOGNITION

Rebecca Heyer

Defence Science and Technology Group

This talk will provide a summary of recently completed and current research projects within the Biometrics Group at the Defence Science & Technology Group. The talk will cover work under the Vulnerabilities in Face Recognition project, including the impact of ageing, glasses, plastic surgery, facial image manipulation, and image quality on unfamiliar face matching, as well as a range of face recognition projects more focussed on algorithm performance.

Abstracts: Session 2

SHOULD WE SELECT FORENSIC EXAMINERS FOR THEIR FACE MATCHING ABILITY?

David White

School of Psychology, UNSW Australia

To improve reliability of face identification in the workplace, we have proposed that organisations select staff based on their natural ability to identify faces. There is now substantial support for this approach: Recent studies confirm that the ability to identify faces is, to a large extent, coded in our DNA. So, is the golden rule to select for super-recognisers? In this talk I develop an argument – grounded in recent research – that facial forensic examiners are an important exception to this rule.

OSC/FISWG UPDATE & FACET UPDATE

Patricia Moss

Department of Foreign Affairs and Trade

A brief update on recent events concerning the circulation of the National Facial Image Training Standards to various levels of law enforcement agencies and the work of the Facial, Aptitude, Competency, and Error Testing (FACET) group on developing definitions and best practice testing guidelines of practitioners of facial image comparison.

AN UPDATE OF FISWG'S FACIAL IMAGE COMPARISON: IMAGE CAPTURE CONDITIONS AND TECHNICAL CONSIDERATIONS AFFECTING MORPHOLOGICAL ANALYSIS

Jason Prince

Australian Federal Police

The Facial Identification Scientific Working Group (FISWG) are finalising a checklist of imaging conditions to establish common terminology and descriptors for the facial image analysis process for OSAC approval. This will address all the image quality issues that relate to the facial image capture process, as morphological analysis is highly sensitive to reductions of sharpness and effective resolution through blurring and compression, occlusions, the introduction of potentially false details such as noise and artefacts, and distortion issues from camera lenses, sensors and subject to camera distance, and exposure and contrast loss due to lighting, camera settings and lens flare etc. This will form another key reference document for the morphological comparison guidelines to be used to assess facial image suitability prior to undertaking an examination using the already published Facial Image Comparison Feature List for Morphological Comparison.

TRAINING TO MATCH FACES VIEWED FROM ABOVE

Simone Favelle

School of Psychology, University of Wollongong

White et al. (2013) demonstrated that feedback training could improve face matching performance for front views. In this study we investigated whether training could improve matching a front view of a face with a view from above (analogous to matching photo ID to CCTV images). Two groups of participants were trained in matching either: (i) two front views or (ii) a front view and a view from above. We found that performance improved for both groups in the training task, however, there were no group differences in performance on a second matching task with a novel set of faces. Implications for theory and applied settings will be discussed.

Abstracts: Session 3

UPDATE ON INTERNATIONAL FACIAL IMAGE STANDARDS

David Chadwick

Department of Foreign Affairs and Trade

FACING THE FACTS: A REVIEW OF PROFESSIONAL TRAINING FOR FACIAL IMAGE COMPARISON

Alice Towler

School of Psychology, UNSW Australia

The Facial Identification Scientific Working Group (FISWG) has outlined international standards for facial image comparison training. However, the extent to which agencies adhere to these guidelines is unclear. To identify the content and structure of current training, I reviewed nine professional facial image comparison training courses. The review revealed that facial identification training is largely consistent across agencies, and typically includes four components. In this talk I will provide an overview of the review, and draw on empirical research to make conclusions regarding each component's effectiveness.

LEGAL ISSUES UPDATE: RELIABILITY, VALIDATION AND EXPERT REPORTS

Mehera San Roque and Gary Edmond

Faculty of Law, UNSW Australia

This presentation will discuss some recent cases and legal developments in the wake of the High Court's decision on the admissibility of expert evidence in *Honeysett v R* [2014] HCA 29, including the recent Victorian decision of *Tuite v The Queen* [2015] VSCA 148, that considered the judge's obligation to assess the reliability of expert evidence, and emphasised the importance of validation studies in that assessment. We will also discuss moves by the Victorian judiciary to use procedural requirements to improve the quality expert reports through the introduction of new Practice Directions on Expert Evidence in Criminal Trials.

BIASES IN IMAGE MEMORY FOR FAMILIAR AND UNFAMILIAR FACES: THE COST OF FAMILIARITY?

James Dunn

School of Psychology, UNSW Australia

Previous research shows differences in cognitive processing of familiar and unfamiliar faces. While people have an impressive ability to recognize familiar faces, matching images of unfamiliar faces is highly error-prone, even under optimal conditions. Theoretically, this has been attributed to the refinement of the memory representations that capture identity specific information, which are stronger for familiar than unfamiliar faces. However recent research suggests that these representations come at a cost for familiar faces, with image specific information being weakened in memory. We examine this finding in a new paradigm, in which participants are asked to detect duplicate images presented simultaneously in a gallery. We found differences in decision bias and latency, but not accuracy, for familiar and unfamiliar faces with performance being worse when faces were familiar. This supports previous findings that familiarity comes at a cost and is evidence of a qualitative change in how we process and respond to images of familiar faces.

Abstracts: Session 4

MATCHING FACES ALL DAY LONG: FEEDBACK INTERACTS WITH INTRINSIC MOTIVATION TO IMPROVE DETECTION OF RARE TARGETS

David White

School of Psychology, UNSW Australia

Many important forensic and security professions require people to monitor arrays of facial images for the presence of targets. Recent advances in facial recognition software have led to specialist staff repeating this task throughout their working day, but the cognitive impact of this workload is unknown. To address this, we tested participants' ability to detect target faces in image arrays over the course of a 7-hour experimental session. Half of the participants did not receive feedback of their accuracy. To the remaining participants, we provided feedback after every 10 trials: if accuracy dropped below or exceeded their baseline accuracy. Feedback increased both match detection and correct rejection rates over the course of the experiment, but only in 10% target prevalence blocks. Moreover, the beneficial effect of feedback was greatest in participants who reported high intrinsic motivation, suggesting that feedback interacts with internal motives to improve accuracy. These results have important implications for face recognition workflow design and staff recruitment procedures.

BIAS IN FACIAL AGE ESTIMATION

Tamara Watson

School of Social Sciences and Psychology, Western Sydney University

When looking at a face we make an almost automatic estimate of the person's age. Research shows our estimate can be biased. For example, we often judge the person's age to be closer to our own. To investigate the origin of age estimation biases we measure the effect of introducing uncertainty to the face image. Within a Bayesian framework, under conditions of increasing uncertainty, the age of a face will appear biased toward our prior expectation. We asked two groups, with age ranges of 18-24 (mean 19) or 33-59 (mean 42), to rate the age of a set of photographs of people ranging from 15 to 70 years. Age judgements were similar from both groups. When images were shown intact, faces younger than 30 years appeared older while faces older than 40 years appeared younger. On top of this, ratings of age were pulled towards 45 years under uncertainty. This suggests two biases are involved in age judgements: (1) a tendency to rate faces as closer to the average of the population; (2) an additional perceptual bias to see faces as closer to 45 years old under conditions of uncertainty. These biases do not appear to depend upon the age of the observer.

VICTORIA POLICE iFACE FACIAL RECOGNITION SYSTEM – A LAW ENFORCEMENT END USER’S PERSPECTIVE

Cameron Tullberg & Bradi Owens

Forensic Services Department, Victoria Police

Since 2010, Victoria Police has had its own Facial Recognition System. Known as iFACE, the system is accessed by all sworn and unsworn (subject to business need) personnel. It allows staff to access Victoria Police’s mug shot database (approximately 1.5 million images) for the purposes of identification against probe images of unknown persons of interest (1 to many searches), the creation of police photoboard (photo arrays) and victim/witness viewings (photobooks). The system also makes use of image capture points at selected police stations allowing for the real time identification of offenders (matched against the mugshot database) at the time of processing by police members. This will give an insight into how research and developments in this field end up in a practical end user system from a law enforcement perspective.

Meeting Organisers

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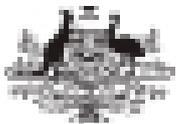


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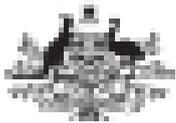
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