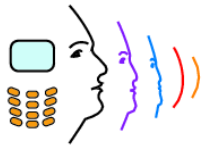

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Funded under the 7th FP (Seventh Framework Programme)
Theme ICT-2007.1.4 [Secure, dependable and trusted Infrastructure]

WP 1: Management

Quarterly Report 3, 2009

Period: July-September 2009 **Submission date:** 02/10/2009
WP Manager: Sebastien Marcel **Revision:** 1

Author(s): S. Marcel (IDIAP), V. Devanthery (IDIAP)

Project funded by the European Commission in the 7th Framework Programme (2008-2010)		
Dissemination Level		
PU	Public	No
RE	Restricted to a group specified by the consortium (includes Commission Services)	Yes
CO	Confidential, only for members of the consortium (includes Commission Services)	No

Contents

1 Activities Overview of your WP

During this third reporting period, the MOBIO management team:

- finalize request for amendement to integrate Visidon in the project,
- finalize the organisation of the technical and review meeting.

2 Description of 3 month activity

- Inclusion of Visidon as a new partner: After a long administrativ process, the European Commission agreed on the inclusion of Visidon. The official letter has been sent the 18th september 2009. The Idiap financial manager sent the requested money to Visidon the 22nd September.

- Organisation of the Technical Meeting and the MOBIO Review Meeting: These meetings took place at the offices of our partner EyePMedia in Renens. The Technical Meeting has been held from Tuesday the 15th of September until midday Wednesday the 16th September. The 2nd Review Meeting has been held from midday Wednesday the 16th of September until Thursday the 17th of September.

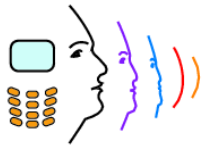
  Although not being officially involved in the project, our new partner Visidon was welcome to attend both meetings. In was an excellent occasion to join the project team, to see the status of the work and to be introduced to the EC representatives.

3 Publications

None

4 Miscellaneous

None



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Theme ICT-2007.1.4 [Secure, dependable and trusted Infrastructure]

WP 2: Use cases, Specifications and Databases
Quarterly Report 3, 2009

Period: July-September 2009 **Submission date:** 02/10/2009
WP Manager: Christopher Mc Cool **Revision:** 1

Author(s): C. McCool (IDIAP), S. Marcel (IDIAP)

Project funded by the European Commission in the 7th Framework Programme (2008-2010)		
Dissemination Level		
PU	Public	No
RE	Restricted to a group specified by the consortium (includes Commission Services)	Yes
CO	Confidential, only for members of the consortium (includes Commission Services)	No

Contents

1 Activities Overview of your WP

For the third quarter of 2009 the goals of this work package were to distribute the Phase I data to each partner and to begin Phase II of the data collection. Phase I of the database was checked, corrected and converted to appropriate formats so that each partner could use the database, this was then distributed to each collection site. In addition, Phase II of the data collection commenced and an initial protocol to use with Phase I of the database has been outlined.

2 Description of 3 month activity

There were two priorities for the third quarter of 2009. The first was to distribute Phase I of the database to consortium members and to begin collection for Phase II of the database.

Phase I of the database was checked, corrected and finalised. It represents more than 40% of the database collection and all of the partners, except for EPM and IdeArk, contributed to this work. This data was then given to the consortium members so that an initial protocol could be developed for this database. This protocol is currently being developed with input from the consortium members.

Phase II of the database is the final part of the database collection. In the third quarter of 2009 this data collection commenced and to date the majority of the consortium members have kept to the timeline of data collection. There have been some delays to this collection for two primary reasons: the first reason is that some of the volunteers were still absent (these people will initially have their sessions captured over a shorter timeframe until they are in line with the recording schedule), and the second reason is that there are still technical problems with the mobile phone at the University of Manchester. This second problem is more serious in nature and is being treated as such.

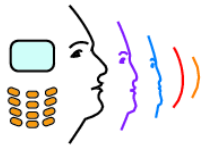
To overcome the technical difficulties at the University of Manchester (UMAN) two approaches are being taken in parallel. The first is to discover the source of the problem (as this only occurs with phones at this site) and the second solution is to buy two new Nokia N93i mobile phones: one phone will act as the primary phone for UMAN and the second phone will be used as a backup in case of further technical problems. If no solution is possible it may become necessary for UMAN to cease recording Phase II of the data. In this extreme case the number of users in the database from 158 to approximately 130 users, which is still acceptable for this database.

3 Publications

None

4 Miscellaneous

None



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Theme ICT-2007.1.4 [Secure, dependable and trusted Infrastructure]

WP 3: Advanced Uni-Modal Face and Speaker Authentication

Quarterly Report 3, 2009

Period: July-September 2009 **Submission date:** 02/10/2009
WP Manager: T. Cootes **Revision:** 1

Author(s): Prof. T. Cootes (UMAN)

Project funded by the European Commission in the 7th Framework Programme (2008-2010)		
Dissemination Level		
PU	Public	No
RE	Restricted to a group specified by the consortium (includes Commission Services)	Yes
CO	Confidential, only for members of the consortium (includes Commission Services)	No

Contents

1 Activities Overview of your WP

Biometric authentication using mobile devices is becoming a convenient and important means to secure access to remote services such as telebanking and electronic transactions. Potential biometrics for authentication include facial appearance and speech characteristics. This work package addresses the need for improved accuracy in these two arenas by developing novel algorithms for: face detection; facial feature localization; face authentication; voice activity detection; and speaker authentication.

Later work packages address the problems of: fusing these two biometrics to improve authentication performance beyond that of either biometric alone (WP4); model adaptation for learning from unlabelled data and tracking changes in the biometrics over time (WP4); scaling each system to fit within the constraints of a mobile device (WP5); and integration into a working demonstrator (WP6).

1.1 Roles of the partners

The roles of each partner are as follow:

- **IDIAP**: Face detection and face authentication.
- **UMAN**: Facial feature localization.
- **UNIS**: Face authentication.
- **UOULU**: Face detection and face authentication.
- **UAPV**: Voice activity detection and speaker verification.
- **BUT**: Voice activity detection and speaker verification.

2 Description of 3 month activity

2.1 IDIAP

- **Advanced face detection**:
  IDIAP has produced an advanced face detection method based on combining Haar features, as used in the popular Viola-Jones detector, with Local Binary Pattern pre-processing, exploiting the integral histogram for efficient implementation. This work was presented at BMVC 2009.

- **Advanced face verification**:
  IDIAP has also delivered an advanced face verification system, presented at the International Conference on Biometrics (ICB) in 2009.

2.2 UMAN

- **A combined local/global model for facial feature localisation**:
  The combined local/global model was delivered for D3.3 and subsequently presented at the 2009 British Machine Vision Conference [1].

- **Finding the optimal Markov Random Field**:
  The advanced face localization system employed a Markov Random Field (MRF) to guide the selection of an optimal set of candidate matches over facial features. Specifically, the MRF prior would bias the selection toward candidates that not only resembled their corresponding feature but also was located in a likely position, given the positions of their neighbouring features. However, the structure of the MRF (i.e. which subsets of features were mutually constrained) is currently hand-specified. Research has suggested that methods exist to select automatically the most appropriate set of constraints in order to obtain the most sharply peaked probability distribution (known as 'Covariance Selection'). This research has identified methods that are suitable for implementation in the advanced system framework.

- **Modelling appearance**:
  Research remains ongoing to develop representations of image texture around facial features that maximize accuracy (i.e. return a local minimum close to the true feature location) and minimize false matches (i.e. do not return local minima far from the true feature location). This will increase the accuracy of the resulting feature locations and improve efficiency.

- **Modelling dynamics:**
  One further avenue of research that is ongoing involves whether we can exploit the temporal smoothness inherent in video sequences to improve efficiency. For example, when searching the image for the first time the estimate of feature locations is likely to be very uncertain. However, having located features in one frame the uncertainty

in their position in the following frame (captured only 40ms later) is likely to be small. Our aim in this research topic is to design effective priors based on a model of the dynamics of the parameter in shape/texture space.

2.3 UNIS

- **Advanced face authentication (D3.3)**:
  Status: Delivered
  UNIS has delivered its advanced face system (D3.3) and contributed to its reporting (D3.4).

- **Advanced face authentication with Local Phase Quantization**:
  Status: Accepted for publication
  In video based face recognition, faces typically experience challenging illumination conditions, blur, or localisation errors in several frames. To alleviate these challenges, quality measures can be used to remove the most severely degraded frames. Still, when the videos are taken in real life settings, degradations are likely to be present even in the highest quality frames, and robust recognition techniques are required.

  To address this problem, another advanced face system was produced in collaboration with UOULU and has subsequently been accepted for publication [2]. In this work, UNIS investigated a novel discriminative face representation based on the Linear Discriminant Analysis of (Multiscale) Local Phase Quantisation histogram (LPQ).

- **Adaptive Client-Impostor Centric Score Normalization**:
  Status: Accepted for publication
  Cohort-based score normalization as exemplified by the T-norm (for Test normalization) has been the state-of-the-art approach to account for the variability of signal quality in testing. On the other hand, user-specific score normalization such as the Z-norm and the F-norm, designed to handle variability in performance across different reference models, has also been shown to be very effective.

  To exploit the strenghth of both approaches, UNIS proposed a novel score normalization called adaptive F-norm, which is client-impostor centric (i.e., utilizing both the genuine and impostor score information) as well as adaptive (i.e, adaptive to the test condition thanks to the use of a pool of cohort models). Experiments based on the BioSecure DS2 database which contains 6 fingers of 415 subjects, each acquired using a thermal and an optical device, show that the proposed adaptive F-norm is at least as good as the other alternatives, including those recently proposed in the literature. These experiments are presented in a paper that has been accepted for publication at the IEEE Conference on Biometrics: Theory, Applications and Systems [3].

- **User assistance in biometric trait acquisition**:
  Status: On-going (a three-year PhD program)
  This activity remains ongoing (see Q2 report for a description of work).

- **Mechanism to counter spoof attack**:
  Status: On-going
  This activity remains ongoing (see Q2 report for a description of work).

2.4 UOULU

- **Deliverables D3.3 and D3.4**:
  During Q3, UOULU worked in co-operation with other project partners to test the partners' contributions to D3.3: Advanced unimodal algorithms.

  Writing of Deliverable D3.4: Report on advanced unimodal algorithms was started in co-operation with other project partners. This deliverable is due during Q4/2009.

- **Recognition and analysis of blurred faces**:
  UOULU has recently begun joint research with Toshiba JAPAN and University of Tokyo on recognition and analysis of blurred faces combining debluring, LBP and LPQ. This work will consider both deblurring of facial images and use of blur tolerant features.

2.5 BUT

- **Advanced speaker verification**:
  BUT worked towards its advanced system for D3.3. It is based on full JFA, that contains both speaker and channel factors. Detailed discussion of the system (primarily of the score normalization issues) are covered in D3.4.

- **InterSpeech 2009**:
  BUT presented 4 papers on speaker recognition accepted to Interspeech 2009 in Brighton, UK:

  1. Burgets paper investigates JFA used for speaker recognition.
  2. Consolidated version of BUT system description for NIST 2008 SRE.
  3. Brummers and Kockmanns papers deal with the topics of language and emotion recognition, but they build and investigate into similar principles that we use in speaker recognition, namely JFA and discriminative system optimization.

- **Johns Hopkins Workshop 2009**:
  BUT researchers Lukas Burget and Petr Schwarz participated at the Johns Hopkins 2009 workshop. The group "Low Development Cost, High Quality Speech Recognition for New Languages and Domains"[1] investigated UBM-JFA approaches to acoustic modeling, that are tightly linked to MoBio work in speaker verification. This work resulted in numerous papers submitted to ICASSP 2009 in Dallas.

[1] `http://www.clsp.jhu.edu/workshops/ws09/groups/ldchqsrnld/`

2.6 UAPV

- **Advanced speaker verification**:
  UAPV have delivered their advanced speaker verification system using a new eigen-channel matrix that is optimized to match the properties of the BANCA dataset (group G1) to reduce the Equal Error Rate by around 20% (when tested on group G2).

- **Binary keys**:
  We have also undertaken some preliminary research into employing binary keys to provide a more compact representation of audio data.

3 Publications

References

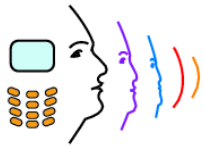
[1] P. A. Tresadern, H. Bhaskar, S. A. Adeshina, C. J. Taylor, and T. F. Cootes, "Combining local and global shape models for deformable object matching," in *Proc. British Machine Vision Conference*, Sept. 2009.

[2] C. H. Chan, J. Kittler, N. Poh, T. Ahonen, and M. Pietikinen, "(multiscale) local phase quantisation histogram discriminant analysis with score normalisation for robust face recognition," in *Workshop on Video-oriented object and event Classification (VOEC'09)*, 2009, accepted.

[3] N. Poh, A. Merati, and J. Kitter, "Adaptive client-impostor centric score normalization: A case study in fingerprint verification," in *IEEE Conf. Biometrics: Theory, Applications and Systems (BTAS)*, Washington, D.C., 2009, accepted.

4 Miscellaneous

Not applicable.



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Theme ICT-2007.1.4 [Secure, dependable and trusted Infrastructure]

WP 4: Joint Bi-Modal Authentication and Model Adaptation

Quarterly Report 3, 2009

Period: July-September 2009 **Submission date:** 02/10/2009
WP Manager: N. Poh **Revision:** 1

Author(s): Dr N. Poh (UNIS)

Project funded by the European Commission in the 7th Framework Programme (2008-2010)		
Dissemination Level		
PU	Public	No
RE	Restricted to a group specified by the consortium (includes Commission Services)	Yes
CO	Confidential, only for members of the consortium (includes Commission Services)	No

Contents

1 Activities Overview of WP4

Biometric authentication using mobile devices is becoming a convenient and important means to secure access to remote services such as telebanking and electronic transactions. Such an application poses a very challenging pattern recognition problem: the training samples are often sparse and they cannot represent the biometrics of a person. The query features are easily affected by the acquisition environment, the user's accessories, occlusions and aging.

The objectives of this WP are to tackle the above problems in two fronts:

- **Joint bimodal authentication**: to develop a novel fusion mechanism to combine the face and speech biometrics
- **model adaptation**: to investigate model adaptation techniques, or semi-supervised learning, i.e., learning from the vast unlabeled query/test data

The roles of each partners are as follow:

- **UNIS**: to coordinate the activities in WP4 and to design mechanisms for adaptive face and speech systems as well as experiments for their evaluation
- **IDIAP**: to study baseline fusion (D4.1 and D4.2) and joint bimodal fusion via feature level fusion (D4.3 and D4.4) as well as working with UNIS on and adaptive systems (D4.5 – D4.8)
- **UAPV**: to deliver an adaptive speech system for D4.5 as well as D4.7.
- **UMAN**: to provide a support for facial annotation needed for the adaptive systems (D4.7 – D4.8)
- **BUT**: to provide phoneme conditioning for speaker verification system (with no obligation)
- **UOULU**: none

2 Description of Three-month activity

- **Report on baseline adaptive systems**:
  Status: Completed (m20)
  D4.6, which reports the baseline adaptive face and speech systems separately, was delivered on time.

- **Advanced fusion system (D4.3)**:
  Status: Planned (due m24)
  IDIAP will investigate a novel feature-level fusion technique combining approximately synchronized face and speech modalites. UNIS will investigate a frame-score level based fusion technique combining both the face and speech modalities.

- **Advanced adaptive system (D4.7)**:
  Status: Planned (due m26)
  IDIAP will deliver a face system capable of adapting to changing acquisition environment using multiple models. UNIS will deliver a cotraining-based multimodal adaptive fusion using LIA's speech expert and UNIS's face expert. UMAN will provide support for facial alignment for multi-model representation.

3 Publications

Past contributions relevant to this work package include the following:

- Survey on the state-of-the-art biometric [1]
- Selecting a subset of biometrics system for fusion [3]
- Quality-based multimodal biometric fusion with cross-device matching [2]
- Four challenges and research directions for multimodal adaptive biometric systems have been identified [4]. This paper won the Best Paper awards in the past Int'l Conference on Biometrics (ICB2009).

References

[1] J. Kittler and N. Poh. Multibiometrics for identity authentication: Issues, benefits and challenges. In *IEEE Conference on Biometrics: Theory, Applications and Systems*, pages 1–6, Washington, D.C., 2009.

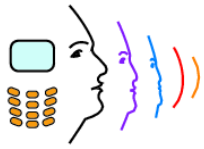
[2] N. Poh, T. Bourlai, and J. Kittler. Quality-based score normalisation with device qualitative information for multimodal biometric fusion. *IEEE Trans. on Systems, Man, and Cybernatics (part B)*, 2009. accepted for publication.

[3] N. Poh and J. Kittler. On Using Error Bounds to Optimize Cost-sensitive Multimodal Biometric Authentication. In *Proc. 19th Int'l Conf. Pattern Recognition (ICPR)*, 2008.

[4] N. Poh, R. Wong, J. Kittler, and F. Roli. Challenges and research directions for adaptive biometric recognition systems. In *LNCS 5558, Proc. of the 3rd Int'l Conf. on Biometrics*, pages 753–764, Sardinia, 2009.

4 Miscellaneous

None



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Funded under the 7th FP (Seventh Framework Programme)
Theme ICT-2007.1.4 [Secure, dependable and trusted Infrastructure]

WP 5: Scalability

Quarterly Report 3, 2009

Period: July-September 2009 **Submission date:** 02/10/2009
WP Manager: J-F. Bonastre **Revision:** 1

Author(s): Prof. J-F. Bonastre (UAPV)

Project funded by the European Commission in the 7th Framework Programme (2008-2010)		
Dissemination Level		
PU	Public	No
RE	Restricted to a group specified by the consortium (includes Commission Services)	Yes
CO	Confidential, only for members of the consortium (includes Commission Services)	No

Contents

1 Activities Overview of your WP

The use of biometric authentication systems on mobile device requires high level of performance with limited resources. Limited processor performance, energy consumption and memory capacity are important examples of such limitations. Development of biometric system scalability allows to deal with such constraints. The scalability study will investigate a number of important parameters taking into account the cellphone specications or the amount of transferred data.

During this period, each partner involved in WP5 defined a list of each parameters for which he wants to study scalability faculties. This list is fully presented in next section.

2 Description of 3 month activity

In this section a full list of potential scalable parameters is prensented by each partner regarding each module .

2.1 Face detection: UOULU & IDIAP

Scalable face detection study performed at the Idiap Research Institute.

- **Fixed point arithmetic** was examined so that the face detector could run on a mobile device. To achieve this a study of the number of bits needed to represent the cascade and associated thresholds was performed.
- **Performing face localisation** rather than full face detection was examined as the purpose of this code is to provide an input to a face verification system and so only the most prominent face in the image needs to be found. Therefore, to reduce computational time it is possible to stop the scanning process once a face has been found. This approach has been analysed experimentally and found to provide improved performance with minimal impact on the accuracy of the face detector system.

These two components represent the main contribution to the scalable face detection system from Idiap.

Scalable face detection study performed at University of Oulu

- **Scalable face detection using Haar features and/or Local Phase Quantization**
  In WP5, UOULU will be working on a scalable face detector based on Viola-Jones (Haar feature based) and/or Local Phase Quantization based face detection. The influence of step size in scales and in the spatial domain as well as the influence of reduction of the number of features used will be investigated. Additionally, implementations based on fixed point arithmetic will be considered. During Q3, UOULU was working on the Local Phase Quantization based face detection system to be used for scalability study.

2.2 Face localisation: UMAN

UMAN will investigate the following design parameters to evaluate their effect on accuracy, efficiency and memory requirements:

- **Reducing the number of points** tracked on the face has been investigated implicitly as part of the hierarchical implementation of the advanced system. Specifically, the model locates 5-7 points on the face in the first round of feature localization; these features (e.g. eyes, nose, mouth) are selected due to their saliency in the image,

leading to accurate localization. Once localized, we may obtain a good estimate of the scale and orientation of the face in the image. As a result, we can make better predictions of the remaining points. These predictions are then refined in the second round of localization.

It has been suggested that only the eye centres are required to normalize the face. While this may be the case for scale and in-plane orientation, more features are required if the system is to be robust to out-of-plane rotations. However, experiments using the MoBio database will tell us whether this is necessary or whether a similarity transform only is sufficient for normalization.

- **Reducing the number of iterations** during optimization has also been shown (empirically) to have an effect on the accuracy of the outcome. Using only one iteration does not provide sufficient accuracy but 5-10 may be sufficient. This will be further quantified in the forthcoming D5.2). Note that varying the number of iterations has no effect on memory requirements.

- **Reducing the resolution of the template** will almost certainly provide gains in speed, though at some cost in performance. Currently, the resolution of the template is selected by hand based on trial-and-error over a small range of scales. We will evaluate the effect of template resolution

- **Reducing the number of shape modes** limits the amount of variation (e.g. due to pose and identity) that can be handled by the system. Limiting the number of modes too much (e.g. to zero) will have a detrimental effect on performance if the user does not look directly at the camera. Typically the number of modes is selected based on the fraction of total variance captured in the reduced subspace. For the purposes of D5.2, we will investigate whether a more pragmatic approach can be employed that relates directly to system performance.

- **Varying the number of levels** has shown to have an effect on accuracy in experiments conducted so far, with the two-level architecture provided the best trade-off between speed and accuracy. We may investigate this further with respect to other design options (e.g. reducing the number of points).

- **Reducing the size of the search region** will have an effect on efficiency since fewer windows must be evaluated at each iteration; it should have a less significant impact on memory requirements. However, the smaller the search region the higher the chance that the true feature position will lie outside it, resulting in performance degradation. Currently, the region size is selected based on training data in order to ensure that the region is sufficiently large to capture all training features and reduced accordingly with each round of the localization (since the solution at the end of each round is expected to be more accurate than at the beginning). We will evaluate how performance degrades when this search radius is reduced below its optimal value.

If time permits, we may also investigate the effect of other parameters including:

- **Resampling:** Currently, the image is resampled at each iteration. We will investigate the efficiency gain associated with employing simple resampling methods (e.g. nearest pixel) rather than more accurate ones (e.g. bilinear).
- **Anchored points:** In the existing algorithm, points localized in one round are refined further in the next. It may be the case that this is unnecessary such that these points can remained 'anchored' for the remainder of the localization process.
- **Scale/orientation-tuned templates:** In the existing scheme, an image pyramid is employed and resampled to account for variation in scale and orientation. It may be more efficient instead to store a different model for a range of scales and orientations instead, though this would increase memory requirements.
- **Appearance model:** Our experiments have shown that using normalized correlation of the gradient image is more accurate than using the raw grey values. However, it may be the case that the gains in accuracy are outweighed by the costs of additional image processing.

2.3 Face verification: UNIS

In order to scale down the face system, UNIS will examine two aspects:

- Vary the number of local regions (sub-blocks of images obtained from a detected face image)
- Vary the diameter of the LBP operators (in terms of number of pixels)

Both approaches will directly influence the final number feature dimensions representing a face image. In particular, reducing the number of local regions as well as reducing the diameter of LBP will reduce the final feature dimension drastically, hence, potentially affecting the face verification performance.

2.4 Speaker verification: UAPV & BUT

- Feature extraction
  - Limitation of size: during the latest NIST-SRE evaluation, best speaker recognition systems used various sizes of acoustic vectors according to systems. However, the dimension of those vectors is high (*eg.* 50 for the UAPV system and 39 for the BUT one). We started to study the influence of the acoustic vector size on the performance of the system.
  - Frame Skiping: classic speaker recognition systems treat one frame of speech material each 10ms seconds. In the context of embedded system we planed to test how it is possible to skip some frames and with which influence. For example, a basic selection can be done by performing tests with only one frame on two.

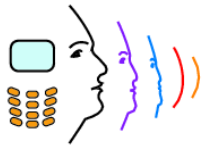
- GMM statistics computation and scoring
  - Study of model size: state-of-the-art systems generally recquire several thousands of gaussian components for the Universal Background Model. In the specific case of MoBio we planed to study in which limits the number of components of the UBM could be decrease while keeping reasonable performance.
  - Investigation into selection of Gaussians for GMM evaluation: instead of calculating the likelihood of each Gaussian component, solutions to perform only the $NBest$ components are explored.
  - Fast scoring (.product): TODO

3 Publications

none

4 Miscellaneous

none



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Theme ICT-2007.1.4 [Secure, dependable and trusted Infrastructure]

WP 6: Demonstration
Quarterly Report 3, 2009

Period: July-September 2009 **Submission date:** 02/10/2009
WP Manager: Jerome Dilay **Revision:** 1

Author(s): Jerome Dilay (EPM)

Project funded by the European Commission in the 7th Framework Programme (2008-2010)		
Dissemination Level		
PU	Public	No
RE	Restricted to a group specified by the consortium (includes Commission Services)	Yes
CO	Confidential, only for members of the consortium (includes Commission Services)	No

Contents

1 Activities Overview of your WP

Work on D6.3 "System specification and prototype implementation with draft biometric modules: laptop simulator", due to Month 18.

2 Description of 3 month activity

During this third reporting period, EyePMedia worked on the deliverable due to Month 18: the D6.3 "System specification and prototype implementation with draft biometric modules: laptop simulator". This prototype has been presented during the MOBIO Review meeting in September.

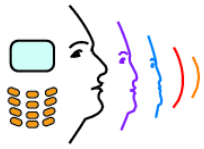
EyePMedia fixed the issue which appeared with the module "Face Localisation" tested during the second quarter. This module required most of the computing power of the computer.

3 Publications

None

4 Miscellaneous

None



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Theme ICT-2007.1.4 [Secure, dependable and trusted Infrastructure]

WP 7: Dissemination and Exploitation

Quarterly Report 3, 2009

Period: July-September 2009 **Submission date:** 02/10/2009
WP Manager: H. Cernocky **Revision:** 1

Author(s): Dr H. Cernocky (BUT)

Project funded by the European Commission in the 7th Framework Programme (2008-2010)		
Dissemination Level		
PU	Public	No
RE	Restricted to a group specified by the consortium (includes Commission Services)	Yes
CO	Confidential, only for members of the consortium (includes Commission Services)	No

Contents

1 Activities Overview of your WP

WP7 dissemination activities concerned mainly scientific publications, dissemination to general public, evaluations, Web pages, Community of Interest (CoI) with related MOBIO newsletter, trade fairs and projects related to MOBIO.

2 Description of 3 month activity

2.1 ICPR 2010: MOBIO Face and Speaker Verification Evaluation

In spring 2009, MOBIO consortium answered to the call for evaluations issued by organizers of the International Conference on Pattern Recognition (ICPR) to be held in 2010 at Istanbul on August 23[1]. The proposal was accepted and first call for participation went to academic and industrial labs in the end of September 2009.

The "MOBIO Face and Speaker Verification Evaluation" web-page will be setup on October 20 2009 with planning and details. In the mid-time, more information can be found on the MOBIO project website[2].

Participants are encouraged to pre-register (with no obligations to participate later) for the competition by completing on Doodle[3] and/or sending an email to Sebastien Marcel.

The first release of the MOBIO database will be done at the occasion of this evaluation.

2.2 IdeArk

2.2.1 SmartEvent '09

Taking place annually in September in the Sophia Antipolis technology park, Smart Event offers a forum of knowledge-sharing, learning, and networking in the fields of e-ID, e-Mobility and Smart Security.

Smart Event encompasses 3 international tech conferences covering complementary areas:

- e-Smart: The future of digital security technologies, smart cards & digital security,
- Smart mobility: The building of trusted mobile platforms, applications & services
- World e-ID: The next generation of e-ID management technologies, services & e-Government Applications.

Subjects of interest to MOBIO were thought to be found mainly in the theme "building trusted mobiles services", but the focus of all participants appeared to be the security between the device and the application or the service provider or the clearing house. It was a common shocking agreement that the mobile, more precisely the SIM card, is the token. Although this paradigm is understandable for micro-payment or less crucial applications, this issue of authentication between the mobile and the user was pushed to many participants. Some stated understandably that it was not their area of focus, but some acknowledged the problem and recognized that MOBIO could bring a clear solution.

[1] http://www.icpr2010.org/contests.php

[2] http://www.mobioproject.org/Public/icpr-2010-mobio-face-and-speaker-verification/view

[3] http://www.doodle.com/m2de4s97sww38cze

IdeArk harvested 10-12 industrial leads out of this conference, of which 5 appear serious in terms of CoI participation or technology interest.

2.2.2 Community of Interest

As stated at the September project review, The CoI continues to grow with the addition of an academic contact in Jordan and the mobile service provider Mill'event. Clearly the fact of having demos to show will attract more companies in the community.

2.3 IDIAP

None

2.4 UMAN

In the last quarter, UMAN presented a paper at BMVC in September.

2.5 UNIS

- UNIS has a paper accepted for publication in IEEE Trans. on Information Forensics and Security
- UNIS has a paper accepted for publication in IEEE Trans. on Systems, Man, and Cybernetics (part B)
- UNIS obtained a prize for a paper on semi-supervised learning problem in bimodal authentication, at ICB2009

2.6 UAPV

None

2.7 BUT

- BUT presented 4 papers at Interspeech 2009 in Brighton, 2 on speaker verification and 2 on closely related domains – language and emotion recognition. Despite no previous track in emotion detection, BUT won a prize in 2-class detection[4]. Tools developed with the help of MOBIO were successfully ported to emotion detection.
- BUT researchers Lukas Burget and Petr Schwarz participated at the Johns Hopkins 2009 workshop. The group "Low Development Cost, High Quality Speech Recognition for New Languages and Domains"[5] will investigated UBM-JFA approaches to

[4] `http://interspeech2009.org/conference/studentprize.php`
[5] `http://www.clsp.jhu.edu/workshops/ws09/groups/ldchqsrnld/`

acoustic modeling, that are tightly linked to MOBIO work in speaker verification. This work resulted in numerous papers submitted to ICASSP 2009 in Dallas.

- In July 2009, Honza Cernocky had speaker verification talk at University of Crete (ICS Forth institute), he was invited in the framework of Erasmus staff exchange program.

2.8 UOULU

UOULU published a press release on the face recognition research done as a part of Timo Ahonen's dissertation. The press release was noted by Finnish newspapers

- Kaleva - 27.8.2009, electronic version available[6]
- Helsingin Sanomat - 8.9.2009, electronic version available[7]

2.8.1 Research visits, invited talks and presentations

- From June 17 till August 17, 2009, Dr. Abdenour Hadid from UOULU made a two month research visit the Visual Media Interface, Center for Information Fusion, Institute of Industrial Science, University of Tokyo, Japan.
- On July 2, 2009, Dr. Abdenour Hadid from UOULU lectured a seminar on LBP in Face Analysis and Computer Vision at the Institute of Industrial Science, University of Tokyo, JAPAN
- On July 22, 2009, Dr. Abdenour Hadid from UOULU gave an invited talk on Image and Video Analysis using LBP at Tokyo Institute of Technology, Japan.
- On July 23, 2009, Dr. Abdenour Hadid from UOULU visited Nissan Research Center in Tokyo and gave an invited talk on Computer Vision, LBP and Car Industry.
- On September 24, 2009, Dr. Abdenour Hadid from UOULU will present a tutorial on Image and Video Analysis Using Local Binary Patterns at the Asian Conference on Computer Vision (ACCV 2009) which will be held in Xi'an, China.
- On September 27, 2009, Prof. Matti Pietikinen from UOULU will present a tutorial on Local Texture Descriptors in Computer Vision at the International Conference on Computer Vision (ICCV 2009) which will be held in Kyoto, Japan.
- On September 28, 2009, Prof. Matti Pietikinen from UOULU co-organized an International Workshop on Machine Learning for Vision-based Motion Analysis (MLVMA'09) In conjunction with IEEE International Conference on Computer Vision 2009 (ICCV'09).

[6] http://www.hightechforum.fi/index.cfm?alue=10&j=811125

[7] http://www.hs.fi/arkisto/artikkeli/Kasvojen++tunnistus++tarkentuu/HS20090908SI1AT021tm

2.9 eyePmedia

3 Publications

Several papers were proposed to conferences and journals. According to the consortium agreement, the abstracts were sent to the MOBIO mailing list. MOBIO publication page[8] was updated and reflects current status in accepted publications.

[8] http://publications.mobioproject.org/

4 Miscellaneous

none.