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*Strategies for Object Segmentation, Detection and Tracking in Complex
Environments for Event Detection in Video Surveillance and Monitoring*

D6.2v4

EVENTVIDEO RESULTS REPORT

Video Processing and Understanding Lab

Escuela Politécnica Superior

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Supported by

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CHANGE LOG

Version	Date	Editor	Description
0.0	20/06/2012	José M. Martínez	Initial version
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1. Introduction

This *report* recapitulates the results obtained within the EventVideo project. The results are disseminated both at the Web site (<http://www-vpu.eps.uam.es/eventvideo>) and via the eVi Newsletters.

The EventVideo project started officially January 2012, nevertheless the Video Processing and Understanding Lab (VPULab) has been working during part of 2011 in the research lines proposed in the project. Therefore the project started to produce related results even before the project official start.

1.1. Document structure

This document contains the following chapters:

- Chapter 1: Introduction to this document
- Chapter 2: Publications
- Chapter 3: Content Sets
- Chapter 4: Project Documents
- Chapter 5: Workshops and Seminars

2. Publications

2.1. Journals

1. Juan C. SanMiguel, José M. Martínez, “**Use of feedback strategies in the detection of events for video surveillance**”, IET Computer Vision, 5(5):309-319, Sep. 2011. (DOI [10.1049/iet-cvi.2010.0047](https://doi.org/10.1049/iet-cvi.2010.0047))
2. Álvaro García-Martín, José M. Martínez, Jesús Bescós, “**A corpus for benchmarking of people detection algorithms**”, Pattern Recognition Letters, 33(2):152-156, Jan. 2012. (DOI [10.1016/j.patrec.2011.09.038](https://doi.org/10.1016/j.patrec.2011.09.038))
3. Juan Carlos San Miguel, Luis Caro, José M. Martínez, “**Pixel-based colour contrast for abandoned and stolen object discrimination in video surveillance**”, IET Electronic Letters, 48(2):86-87, Jan. 2012. (DOI [10.1049/el.2011.3160](https://doi.org/10.1049/el.2011.3160))
4. Juan Carlos San Miguel, Andrea Cavallaro, José M. Martínez, “**Adaptive on-line performance evaluation of video trackers**”, IEEE Transactions on Image Processing 21(5):2812-2823, May 2012. (DOI [10.1109/TIP.2011.2182520](https://doi.org/10.1109/TIP.2011.2182520))
5. Álvaro García-Martín, José M. Martínez, “**On collaborative people detection and tracking in complex scenarios**”, Image and Vision Computing, 30(4-5):345-354, May 2012, Elsevier, ISSN 0262-8856. (DOI [10.1016/j.imavis.2012.03.005](https://doi.org/10.1016/j.imavis.2012.03.005)).
6. Juan Carlos San Miguel, José M. Martínez, “**A semantic-based probabilistic approach for real-time video event recognition**”, Computer Vision and Image Understanding, 116(9):937-952, September 2012, Elsevier, ISSN 1077-3142. (DOI [10.1016/j.cviu.2012.04.005](https://doi.org/10.1016/j.cviu.2012.04.005)).
7. Álvaro García-Martín, José M. Martínez, “**Enhanced people detection combining appearance and motion information**”, IET Electronic Letters, 49(4):256-258, February 2013, IET, ISSN 0013-5194 (DOI [10.1049/el.2012.3817](https://doi.org/10.1049/el.2012.3817)).
8. Juan Carlos San Miguel, José M. Martínez, “**A semantic-guided and self-configurable framework for video analysis**”, Machine Vision and Applications, 24(3):493-512, April 2013, Springer, ISSN 0932-8092 (DOI [10.1007/s00138-011-0397-x](https://doi.org/10.1007/s00138-011-0397-x))
9. Rafael Martín, Jose M. Martinez, “**A semi-supervised system for players detection and tracking in multicamera soccer videos**”, Multimedia Tools and Applications, (on line August 2013), Springer, ISSN 1380-7501 (DOI [10.1007/s11042-013-1659-6](https://doi.org/10.1007/s11042-013-1659-6)).
10. Juan Carlos San Miguel, Sergio Suja, “**Skin detection by dual maximization of detectors agreement for video monitoring**”, Pattern Recognition Letters, 34(16):2102-2109, December 2013, Elsevier Science Inc., ISSN 0167-8655 (DOI [10.1016/j.patrec.2013.07.016](https://doi.org/10.1016/j.patrec.2013.07.016)).

2.2. Book chapters

Juan Carlos San Miguel, Álvaro García-Martín, José M. Martínez, “**Performance evaluation in video-surveillance systems: the EventVideo Project evaluation**”

protocols”, Intelligent Multimedia Surveillance: Current Trends and Research, Pradeep Atrey, Mohan Kankanhalli, Andrea Cavallaro (eds.), 2013, Springer (in press)

2.3. Conferences

1. Juan Carlos San Miguel, Andrea Cavallaro, José M. Martínez, “**Standalone evaluation of deterministic video tracking**”, en Proc. of 2012 IEEE International Conference on Image Processing, ICIP 2012, Orlando, E.E.U.U., 30 September-3 October 2012, pp.1353-1356
2. Álvaro García-Martín, Andrea Cavallaro, José M. Martínez, “**People-background segmentation with unequal error cost**”, en Proc. of 2012 IEEE International Conference on Image Processing, ICIP 2012, Orlando, E.E.U.U., 30 September-3 October 2012, pp. 157-160
3. Diego Ortego, Juan Carlos San Miguel, “**Stationary foreground detection for video-surveillance based on foreground segmentation and motion history images**”, in Proc. of 2013 IEEE International Conference on Advanced Video and Signal-based Surveillance, AVSS 2013, Kraków, Poland, 27-30 August 2013, pp. 75-80
4. Rafael Martín, Jose M. Martínez, "An automatic system for sports analytics in multi-camera tennis videos", in Proc. of Activity Monitoring by Multiple Distributed Sensing (AMMDS) Workshop 2013 in conjunction with 2013 IEEE International Conference on Advanced Video and Signal-based Surveillance, AVSS 2013, Kraków, Poland, 27-30 August 2013, pp. 438-442
5. Fabricio Tiburzi, Jesús Bescós, “**Robust camera motion estimation in presence of large moving objects**”, en Proc. of 2013 IEEE International Conference on Image Processing, ICIP 2013, Melbourne, Australia, 15-18 Septiembre 2013, pp. 2509-2513

2.4. PhD thesis

1. **Contributions to robust people detection in video-surveillance**, Álvaro García Martín (tutor: José M. Martínez), Tesis Doctoral (PhD Thesis), Escuela Politécnica Superior, Univ. Autónoma de Madrid, Oct. 2012.

2.5. Masther thesis

1. **Evaluación comparativa de algoritmos de seguimiento de objetos (Comparative evaluation of object tracking algorithms)**, Mónica Lozano Cruz (tutor: Juan C. San Miguel, ponente: José M. Martínez), Proyecto Fin de Carrera (Master Thesis), Escuela Politécnica Superior, Univ. Autónoma de Madrid, Feb. 2012.
2. **Generación de fondo de escena en secuencias de video-seguridad (Background generation in video-surveillance sequences)**, Alberto Muñoz García (tutor: Juan C. San Miguel, ponente: José M. Martínez), Proyecto Fin de

- Carrera (Master Thesis), Escuela Politécnica Superior, Univ. Autónoma de Madrid, Sep. 2012.
3. **Detección de robo/abandono de objetos en interiores utilizando cámaras de profundidad (Indoor stolen/abandoned object detection using depth cameras)**, Fabricio A. Córdova Lucero (tutor: Juan C. San Miguel, ponente: José M. Martínez), Proyecto Fin de Carrera (Master Thesis), Escuela Politécnica Superior, Univ. Autónoma de Madrid, Dec. 2012.
 4. **Análisis de interacciones y actividades en entornos controlados (Analysis of interactions and activities in controlled environments)**, Sergio Suja Garrido (tutor: Juan C. San Miguel, ponente: José M. Martínez), Proyecto Fin de Carrera (Master Thesis), Escuela Politécnica Superior, Univ. Autónoma de Madrid, Dec. 2012.
 5. **On the Fusion of Single-Target Video Objects Tracking Algorithms**, Rafael Martín Nieto (tutor: José M. Martínez), Trabajo Fin de Master (Master Thesis), Master Universitario en Investigación e Innovación en TIC (i2TIC), Escuela Politécnica Superior, Universidad Autónoma de Madrid, Sep. 2013.
 6. **Detección de objetos estáticos de primer plano en escenarios altamente concurridos de video-seguridad (Detection of foreground static objects in crowded video-surveillance scenarios)**, Diego Ortego Hernández (tutor: Juan C. San Miguel, ponente: José M. Martínez), Proyecto Fin de Carrera (Master Thesis), Escuela Politécnica Superior, Univ. Autónoma de Madrid, Sep. 2013.
 7. **Anomaly Detection in Video Sequences**, Luis A. Caro Campos (tutor: Juan Carlos San Miguel), Trabajo Fin de Master (Master Thesis), Master Universitario en Investigación e Innovación en TIC (i2TIC), Escuela Politécnica Superior, Universidad Autónoma de Madrid, Oct. 2013.

3. Content Sets

1. Abandoned and Stolen Object Discrimination dataset - ASODDs (<http://www-vpu.eps.uam.es/DS/ASODDs/>)
2. Event Detection dataset - EDds (<http://www-vpu.eps.uam.es/DS/EDds/>)
3. Person Detection dataset - PDds (<http://www-vpu.eps.uam.es/DS/PDds/>)

4. Project Documents

4.1. Deliverables

D1.1v1 – System Infrastructure (public) – June 2012

D1.1v2 – System Infrastructure (public) – June 2013

D1.2v1 – DiVA Documentation (public) – June 2012

D5.3v1 – EventVideo Test Sequences, Ground-truth and Evaluation Methodology (public) – June 2012

D5.4v1 – EventVideo Results Report (public) – June 2012

D5.4v2 – EventVideo Results Report (public) – December 2012

D6.2v3 – EventVideo Results Report (public) – June 2013

D6.2v4 – EventVideo Results Report (public) – December 2013

4.2. Technical Reports

TR.01 "Evaluation results and future research lines" (restricted) - April 2013

5. Workshops and Seminars