Alexia Briassouli
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WORK EXPERIENCE

2006 – current	**Post-doctoral research fellow**

CERTH ITI, Thessaloniki, Greece
- research on unusual event detection, activity recognition, crowd event detection, temporal textures analysis
- proposal writing for H2020, FP7, national, Interreg, IMI
- PhD co-supervision: activity recognition, event detection
- workshop, summer school organization

2006 – 2010   **Adjunct professor**
University of Thessaly
Dept of Electrical and Computer Engineering
- undergraduate and graduate signal and image processing
- masters and diploma theses supervision
- image and signal processing lab

2005 – 2006   **Post-doctoral research fellow**
University of Illinois at Urbana-Champaign
Dept of Electrical and Computer Engineering

2001 – 2005   **Research assistant**
University of Illinois at Urbana-Champaign
Dept of Electrical and Computer Engineering
Computer Vision and Robotics Lab

2000 – 2001   **Research associate**
CERTH ITI, Thessaloniki, Greece
- research on watermark embedding and detection

1999 – 2000   **Research and teaching assistant**
Univ of Patras, Greece
- research on watermark detection
- teaching assistant for Detection and Estimation Theory

EDUCATION

2001 – 2005   **PhD Electrical and Computer Engineering**
University of Illinois at Urbana – Champaign
Dept of Electrical and Computer Engineering
Thesis: Fusion of Frequency and Spatial Domain Information f
for Motion Analysis
Thesis advisor: Prof. Narendra Ahuja

1999 – 2001   **Masters Signal and Image Processing Systems**
University of Patras
Interdepartmental Program "Signal and Image Processing Systems: Theory, Implementations, Applications (SIPS)",

Masters Thesis: Hidden Messages in Heavy-Tails: DCT-Domain Watermark Detection Using Alpha-Stable Models
Thesis advisor: Prof Panagiotis Tsakalides

1994 – 1999   **Diploma Electrical and Computer Engineering**
National Technical Univ of Athens
Dept of Electrical and Computer Engineering
Thesis: Improving the 3D Reconstruction of Images from 2D
Sequences of Video Frames in the Presence of Additive Noise
Thesis advisor: Prof Kollias

TEACHING EXPERIENCE

2006 – 2010 Univ of Thessaly, Dept of Electrical and Computer Engineering
Undergraduate:
- signals and systems
- digital signal processing
- digital image processing

Graduate:
- image and video processing
- speech and sound processing
- advanced topics in digital signal processing

Lab organization and teaching/co-teaching:
- image and video processing
- signals and systems

Diploma thesis supervision:
1. Hidden Markov Model background removal for event localization (Koutsaftikis, spring 2008)
2. Motion Estimation based on Mean Squared Error minimization of Fourier Phase (Koutsagia, spring 2008)
3. Transparent Object Motion Segmentation using Fourier Techniques (Xanthopoulou, spring 2008)
4. Statistical Video Processing for the Characterization and Detection of Human Activity (Poularakis, spring 2008)
5. Advanced clustering techniques in images and videos (Sotiropoulos, fall 2007)
6. Adaptive color modelling for background detection and tracking (Kapetanios, fall 2007)

Masters thesis supervision:
1. Konstantinos Avgerinakis (2009), "Video Tracking Using Scale-Invariant FeatureTransform (SIFT) Algorithm"
2. Stergios Poularakis (2010), "Video analysis for event and activity detection and recognition"

2012 – 2016 CERTH ITI
PhD thesis co-supervision:
1. Konstantinos Avgerinakis (2014), "Video processing for tracking, change detection and activity classification'", Information Technologies Institute, CERTH, Faculty of Engineering and Physical Sciences, University of Surrey.
2. Vagia Kaltsa (expected 2017), "Analysis of random motions in videos of crowds, temporal textures", Aristotle University of Thessaloniki.

PROJECTS

ROBORDER: H2020, July 2017
Swarms of autonomous robots (UAVs, UGVs, UUVs) for detection of illegal activities and disasters near borders. Computer vision approaches for event detection, detection of pollution.

beAWARE: H2020, Jan 2017
Situational awareness for effective command and control. Computer vision approaches for event detection and early warnings in the case of fire, flood, heatwave.

HOMER: FP7
Detection of videos with homemade explosives and recipes after fusion with textual data.

Dem@Care: FP7, 2011-2015
Dementia Ambient Care: Multi-Sensing Monitoring for Intelligent Remote Management and Decision Support. Recognition of activities of daily living in lab, nursing home and home environments.

MEDUSA: EDA
Multi Sensor Data Fusion Grid for Urban Situational Awareness. Fire and smoke detection from video based on motion statistics over time.

JUMAS: IST-STREP
Judicial Management by Digital Libraries Semantics. Activity and event detection in video.

aceMEDIA: FP6
Integrating knowledge, semantics and content for user centred intelligent media services. Video analysis for event and activity recognition, background removal methods.

PUBLICATIONS

- 17 Journal publications - *see list at end of CV*
- 39 conference publications - *see list at end of CV*
- 3 book chapters

BOOK CHAPTERS

Editor
A. Briassouli, J. Benois-Pineau, A. Hauptmann, "Comprehensive Health Monitoring and Personalized Feedback Using Multimedia Data", Springer, 2015 (ISBN 978-3-319-17963-6).

Author
1. K. Avgerinakis, A. Briassouli and I. Kompatsiaris, "Activities of Daily Living Detection And Recognition: Activity detection and recognition of daily living events",in"Comprehensive Health Monitoring and Personalized Feedback Using Multimedia Data", A. Briassouli, J. Benois-Pineau, A. Hauptmann Eds, Springer, 2015.
2. V. Mezaris, G. Th. Papadopoulos, A. Briassouli, I. Kompatsiaris, M. G. Strintzis: "Semantic Video Analysis and Understanding", Encyclopedia of Information Science and Technology, Second edition.

3. D. Simitopoulos, A. Briassouli and M. G. Strintzis: "Robust Watermark Detection from Quantized MPEG Video Data", Multimedia Security Handbook, B. Fuhrt and D. Kirovski Eds., CRC Press.

TECHNICAL ACTIVITIES

- ACM MM 2016 Workshop "Multimedia for personal health and health care"
- ICIP 2015 Special Session "Image/Video Indexing and Retrieval for HealthCare"
- ACM MM 2013 Workshop "Multimedia Indexing and information Retrieval for Healthcare"
- InMed '13: Innovation in Medicine and Healthcare 2013 workshop "Ambient Telecare"
- demAAL:Dem@CareSummer School on Ambient Assisted Living", 2013
- 9th Panhellenic Interdisciplinary Conference on Alzheimer's Disease & Related Disorders, 2015, "Round Table Discussion on "Multimodal Monitoring and Feedback for Remote Dementia Care"
- ICT 2013 Exhibition: Dem@Care exhibition and demos
- ICT 2015 Networking Event: Dem@Care booth
- Conference Reviewer: ICIP, ICMR, ICPR, ACM MM, CBMI, CVPR.
- Journal Reviewer: IEEE Trans Image Processing, IEEE Trans Circuits and Systems for Video Technology, IEEE Trans on Cybernetics, CVIU
- Proposal Reviewer: FET EU proposals
- Project Reviewer: FET EU project Harvest4D – Harvesting Dynamic 3D Worlds from Commodity Sensor Clouds

FOREIGN LANGUAGES
- English: Native speaker
- Greek: Native speaker
- French: Very good

COMMUNICATION SKILLS
- Good communication skills from work in multinational, multidisciplinary teams, project collaborations and management, grant proposal writing.
- Clear, concise, and detailed communication with research team, proposal collaborators, colleagues.

ORGANIZATIONAL/MANAGERIAL SKILLS
- Organizational skills from managing research teams in EU research projects and proposals, including up to 20 academic and industrial partners from all over Europe. Close collaboration with 3-4 member research team, PhD co-supervision.
- Workshop and summer school organization
- Organization and teaching of classes with up to 200 students, from first year to graduate, and lab for image and video processing in the Univ of Thessaly

JOURNAL PUBLICATIONS

1. S. Poularakis , K. Avgerinakis , A. Briassouli , I. Kompatsiaris, "Efficient motion estimation methods for fast recognition of activities of daily living", Signal Processing: Image Communication, 2017.

2. C.F. Crispim-Junior, V. Buso, K. Avgerinakis, G. Meditskos, A. Briassouli, J. Benois-Pineau, I. Kompatsiaris, F. Bremond, "Semantic Event Fusion of Different Visual Modality Concepts for Activity Recognition", Special Issue on Multimodal Human Pose Recovery and Behavior Analysis, IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), issue 99, 2016.

3. K. Avgerinakis, A. Briassouli, and I. Kompatsiaris, "Activity detection using sequential statistical boundary detection (SSBD)", Computer Vision and Image Understanding (CVIU), pp 46-61, vol 144, March 2016.

4. K. Avgerinakis, A. Briassouli, I. Kompatsiaris, "Activities of Daily Living Recognition Using Optimal Trajectories from Motion Boundaries", Journal of Ambient Intelligence and Smart Environments, 7(6):817-834, November 2015.

5. V. Kaltsa, A. Briassouli, I. Kompatsiaris, L. J. Hadjileontiadis, M. G. Strintzis, "Swarm Intelligence for Detecting Interesting Events in Crowded Environments", IEEE Transactions on Image Processing, 24 (7), 2153-2166, July 2015.

6. A. Briassouli, D. Matsiki, I. Kompatsiaris, "Continuous Wavelet Transform for Time Varying Motion Extraction", IET Image Processing, Special Issue VIE, Vol. 4 (4), pp. 271 - 282 , August 2010.

7. A. Briassouli, I. Kompatsiaris, "Robust Temporal Activity Templates Using Higher Order Statistics", IEEE Transactions on Image Processing, Vol. 18, Issue 12, pp. 2756-2768, December 2009.

8. A. Briassouli, V. Tsiminaki, I. Kompatsiaris, "Human Motion Analysis via Statistical Motion Processing and Sequential Change Detection", EURASIP Journal on Image and Video Processing, vol. 2009, Article ID 652050, 16 pages, 2009.

9. G. Th. Papadopoulos, A. Briassouli, V. Mezaris, I. Kompatsiaris and M. G. Strintzis, "Statistical Motion Information Extraction and Representation for Semantic Video Analysis", IEEE Transactions on Circuits and Systems for Video Technology (TCSVT), vol. 19, no. 10, pp. 1513-1528, October 2009.

10. A. Briassouli and N. Ahuja: "Integration of Frequency and Space for Multiple Motion Estimation and Shape-Independent Object Segmentation", IEEE Transactions on Circuits, Systems and Video Technology, Volume 18, Issue 5, pp. 657-669, May 2008.

11. A. Briassouli, V. Mezaris, I. Kompatsiaris: "Combination of Accumulated Motion and Color Segmentation for Human Activity Analysis", EURASIP Journal on Image and Video Processing, Volume 8, Issue 2, January 2008.

12. A. Briassouli, V. Mezaris, I. Kompatsiaris, "Color aided motion-segmentation and object tracking for video sequences semantic analysis", International Journal of Imaging Systems and Technology (IJIST), Special Issue on Applied Color Image Processing, Volume 17, Issue 3, pp 174-189, Oct. 2007.

13. A. Briassouli and N. Ahuja, "Extraction and Analysis of Multiple Periodic Motions in Video Sequences", IEEE Trans. on Pattern Analysis and Machine Intelligence, Vol. 29, Issue 7, pp. 1244-1261, July 2007.

14. A. Briassouli and M. G. Strintzis, "Locally Optimum Nonlinearities for DCT Watermark Detection", IEEE Trans. on Image Processing, Vol. 13, Issue 12, pp. 1604-1617, Dec. 2004.

15. Briassouli and M. G. Strintzis, "Optimal Watermark Detection Under Quantization in the Transform Domain", IEEE Trans. on Circuits, Systems and Video Technology, Vol. 14, No. 12, Dec. 2004, pp. 1308-1319.

16. A. Briassouli, P. Tsakalides (Member IEEE) and Athanasios Stouraitis (Senior Member IEEE): "Hidden Messages in Heavy-Tails: DCT-Domain Watermark Detection Using Alpha-Stable Models", IEEE Transactions of Multimedia, Vol. 7, Issue 4, pp. 700 – 715, Aug. 2005.
17. D. Simitopoulos, S. A. Tsaftaris, N. V. Boulgouris, A. Briassouli, and M. G. Strintzis: "Fast Watermarking of MPEG-1/2 Streams Using Compressed-domain Perceptual Embedding and a Generalized Correlator Detector", EURASIP JASP, 2004:8, pp 1088-1106, Aug. 2004.

CONFERENCE PUBLICATIONS

1. F. Markatopoulou, A. Moumtzidou, D. Galanopoulos, T. Mironidis, V. Kaltsa, A. Ioannidou, S. Symeonidis, K. Avgerinakis, S. Andreadis, I. Gialampoukidis, S. Vrochidis, A. Briassouli, V. Mezaris, I. Kompatsiaris, I. Patras, "ITI-CERTH participation in TRECVID 2016", Proc. TRECVID 2016 Workshop, Gaithersburg, MD, USA, Nov. 2016.
2. T. G. Stavropoulos, G. Meditskos, A. Briassouli, I. Kompatsiaris, "Multimodal Sensing and Intelligent Fusion for Remote Dementia Care and Support", 1st International Workshop on Multimedia for Personal Health and Healthcare (MMHealth) 2016, co-locatied with ACM Multimedia 2016, Amsterdam, The Netherlands, 16 October, 2016.
3. K. Avgerinakis, K. Adam, A. Briassouli, Y. Kompatsiaris, "Moving camera human activity localization and recognition with motionplanes and multiple homographies", IEEE International Conference on Image Processing (ICIP), Quebec city, Canada, Sep. 2015.
4. S. Poularakis, K. Avgerinakis, A. Briassouli, Y. Kompatsiaris, "Computationally efficient recognition of activities of daily living", IEEE International Conference on Image Processing (ICIP), Quebec city, Canada, Sep. 2015.
5. S. Tachos, K. Avgerinakis, A. Briassouli, I. Kompatsiaris, "Appearance and Depth for Rapid Human Activity Recogntion in Real Applications", British Machine Vision Conference (BMVC), Sep. 2015, pages 38.1-38.12. BMVA Press. DOI: 10.5244/C.29.38.
6. V. Kaltsa, A. Briassouli, I. Kompatsiaris and M. G. Strintzis, "Swarm - based Motion Features for Anomaly Detection in Crowds", 2014 IEEE International Conference on Image Processing, Paris, France, Oct 27-30, 2014.
7. K. Avgerinakis, A. Briassouli, I. Kompatsiaris, "Activity detection and recognition of daily living events". 1st ACM MM Workshop on Multimedia Indexing and Information Retrieval for Healthcare (MIIRH): held in conjunction with ACM MM 2013, Barcelona, Spain, Oct 2013.
8. K. Avgerinakis, A. Briassouli, I. Kompatsiaris. "Robust Monocular Recognition of Activities of Daily Living for Smart Homes". 9th International Conference on Intelligent Environments (IE2013), Athens, Greece, July 18-19, 2013.
9. K. Avgerinakis, A. Briassouli , I. Kompatsiaris, "Recognition of Activities of Daily Living", 5th International Symposium on Monitoring & Surveillance Research (ISMSR): Healthcare-Safety-Security, Athens, Greece, Nov. 9 2012.
10. K. Avgerinakis, A. Briassouli , I. Kompatsiaris, "Smoke Detection Using Temporal HOGHOF Descriptors and Energy Colour Statistics from Video", Firesense Workshop, 8-9 November 2012, Antalya, Turkey.
11. K. Avgerinakis, A. Briassouli, I. Kompatsiaris, "Video monitoring for activities of daily living recognition", AAL Forum, Eidhoven, The Netherlands, Sep. 24-27 2012.
12. V. Kaltsa, A. Briassouli, I. Kompatsiaris and M. G. Strintzis, "Timely, Robust Crowd Event Characterization", 2012 IEEE International Conference on Image Processing, Orlando, Fla, USA, Sept 30 - Oct 3 2012.
13. A. Briassouli, I. Kompatsiaris, "Spatiotemporally Localized New Event Detection in Crowds", ARTEMIS ICCV 2011 workshop, Barcelona, November 4-14, 2011, pp 928 - 933.

14. A. Briassouli, I. Kompatsiaris,"Change Detection for Temporal Texture in the Fourier Domain" , ACCV 2010 - 10th Asian Conference on Computer Vision, Queenstown, New Zealand, November 2010.

15. K. Avgerinakis, A. Briassouli, I. Kompatsiaris,"Real Time Motion Changes for New Event Detection and Recognition", ACCV 2010 Workshop - 10th International Workshop on Visual Surveillance VS 2010, Queenstown, New Zealand, November 2010.

16. K. Avgerinakis, A. Briassouli, I. Kompatsiaris,"Real Time Illumination Invariant Motion Change Detection",ACM Multimedia 2010 Workshop - 1st ACM ARTEMIS2010 International Workshop, Firenze, Italy, pp.75-80, October 2010.

17. K. Avgerinakis, A. Briassouli, I. Kompatsiaris,"Video processing for judicial applications", ICT4justice, Skopje, FYROM, Sept. 2009.

18. S. Poularakis, A. Briassouli, Ioannis Kompatsiaris, "Full Action Instances for Motion Analysis," 10th International Workshop on Image Analysis for Multimedia Interactive Services (WIAMIS 2009), London, UK.

19. A. Briassouli, I. Kompatsiaris,"Change Detection for Video ", IWSM Second International Workshop on Sequential Methodologies, Troyes, France, June 15-17 2009.

20. A. Briassouli, I. Kompatsiaris, " Detection of Multiple Subevents in Space and Time for Video Analysis ", WCVIM International Workshop on Computer Vision and its Application to Image Media Processing, Jan. 2009.

21. G. Th. Papadopoulos, A. Briassouli, V. Mezaris, I. Kompatsiaris and M. G. Strintzis, "Semantic Video Analysis Based on Estimation and Representation of Higher-Order Motion Statistics", 3rd International Workshop on Semantic Media Adaptation and Personalization (SMAP '08), pp. 21-26, Prague, Czech Republic, December 2008.

22. A. Briassouli, I. Kompatsiaris, "Human activity localization via sequential change detection" , Proceeding of the 1st ACM international conference on Multimedia information retrieval (MIR 2008), Oct. 2008, pp. 260-267.

23. A. Briassouli, I. Kompatsiaris,"Exploitation of knowledge in video recordings ", ICT Solutions for Justice, Oct. 2008.

24. A. Briassouli, D. Matsiki, I. Kompatsiaris, "Wavelet domain processing for trajectory extraction ", IEEE International Conference on Image Processing (ICIP), Oct. 2008, pp. 1560-1563.

25. A. Briassouli, D. Matsiki, I. Kompatsiaris, " Continuous Wavelet Transform for Time-Varying Motion Extraction ", IEEE International Conference on Visual Information Engineering (VIE 2008), July 2008.

26. A. Briassouli, I. Kompatsiaris: "Statistical processing of video for detection of events in space and time ", IEEE International Conference on Multimedia and Expo (ICME), June 2008, pp. 1293-1296.

27. A. Briassouli, S. Dasiopoulou, I. Kompatsiaris, "Ontology-Based Trajectory Analysis for Semantic Event Detection", IEEE International Conference on Semantic Computing (ICSC2007), Sept. 2007.

28. A. Briassouli, V. Mezaris and I. Kompatsiaris: "Joint Motion And Color Statistical Video Processing For Motion Segmentation ", IEEE International Conference on Multimedia and Expo (ICME), July 2007

29. A. Briassouli, V. Mezaris and I. Kompatsiaris:"Video Segmentation And Semantics Extraction From The Fusion Of Motion And Color Information ", International Conference on Image Processing (ICIP) Sept. 2007.

30. A. Briassouli and N. Ahuja: "Spatial and Fourier Error Minimization for Motion Estimation and Segmentation", International Conference on Pattern Recognition, ICPR 2006.

31. N. Ahuja and A. Briassouli: "Joint Space-Frequency Processing for Motion Analysis", FG 2006, Proceedings of the 7th International Conference Automatic Face and Gesture Recognition, April 10-12, Southampton, UK.

32. A. Briassouli and N. Ahuja: "Estimation of Multiple Periodic Motions from Video", ECCV 2006, Proceedings of the 9th European Conference on Computer Vision, May 7 - 13, Gratz, Austria.

33. A. Briassouli and N. Ahuja: "Integrated Spatial and Frequency Domain 2D Motion Segmentation and Estimation", ICCV 2005, Proceedings of the 10th International Conference on Computer Vision, Vol. 1, Oct. 15-20, Beijing, China, pp. 244-250.

34. A. Briassouli and N. Ahuja: "Fusion of frequency and spatial domain information for motion analysis", ICPR 2004, Proceedings of the 17th International Conference on Pattern Recognition, Vol. 2, Aug. 23-26, Cambridge, UK, pp. 175-178.

35. P. Moulin and A. Briassouli: "A Stochastic QIM Algorithm for Robust, Undetectable Image Watermarking" , ICIP 2004, Singapore (top 15% of submitted papers).

36. A. Briassouli and P. Moulin: "Detection-Theoretic Analysis of Warping Attacks in Spread-Spectrum Watermarking", ICASSP 2003, Hong-Kong.

37. P. Moulin, A. Briassouli and H. Malvar: "Detection-Theoretic Analysis of Desyncronization Attacks in Watermarking" , DSP 2002, July 1-3, Santorini, Greece.

38. P. Moulin and A. Briassouli: "The Gaussian Fingerprinting Game", 2002, CISS, Conference on Information Sciences and Systems, Princeton Univ., March 20 - 22, 2002.

39. A. Briassouli, Y. Xirouhakis and A. Delopoulos: "Recursive 3D Reconstruction under Orthography using Kalman Filtering", International Workshop on Synthetic-Natural Hybrid Coding and 3D Imaging (IWSNHC3DI'99), Santorini, Greece.