

# Yannis Avrithis

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## Summary

Dr. Yannis Avrithis is a research scientist in LinkMedia team of Inria Rennes–Bretagne Atlantique, carrying out research on computer vision and machine learning. He has been involved in 15 European and 9 National research projects, he has co-supervised 8 Ph.D. theses and 12 Diploma theses, and he has published 3 theses, 3 edited volumes, 26 articles in journals, 103 in conferences and workshops, 8 book chapters and 13 technical reports in the above fields. He has contributed to the organization of 21 conferences and workshops, and is a reviewer in 16 scientific journals and 15 conferences. He is a member of IEEE, ACM, EURASIP, and the Technical Chamber of Greece.

## Research interests

Computer vision,  
machine learning

Visual feature detection, representation of visual appearance and geometry, image matching and registration, image indexing and retrieval, clustering, nearest neighbor search, object detection and recognition, scene classification, image/video segmentation and tracking, and video summarization.

## Education

- 1996–2001 **Ph.D. in Electrical and Computer Engineering.** *National Technical University of Athens, Greece.*
- 1993–1994 **Master of Science (M.Sc.) in Communications and Signal Processing (with Distinction).** *Imperial College of Science, Technology and Medicine, University of London, UK.*
- 1988–1993 **Diploma/M.Eng. in Electrical & Computer Engineering.** *National Technical University of Athens, Greece.*

## Employment history

- 2016– **Research Scientist.** *LinkMedia team, Inria Rennes–Bretagne Atlantique, Campus de Beaulieu, 35042 Rennes Cedex, France.*
- 2015 **Researcher.** *Laboratory of Algebraic and Geometric Algorithms, National and Kapodistrian University of Athens, Panepistimioupolis, 157 84 Ilissia, Greece.*
- 2001–2014 **Senior Researcher.** *Image, Video and Multimedia Systems Laboratory, National Technical University of Athens, 9 Iroon Polytechniou Str., 157 73 Zographou, Greece.*
- 1999–2001 **Project Manager, Research & Development.** *Syntax IT, Inc., 218 Mesogion Ave., 155 61 Holargos, Athens, Greece.*
- 1997–1999 **Software Engineer.** *Infolab Multimedia Ltd, 320 Mesogion Ave., 155 62 Holargos, Athens, Greece.*
- 1995–1997 **System Administrator.** *Image, Video and Multimedia Systems Laboratory, National Technical University of Athens, 9 Iroon Polytechniou Str., 157 73 Athens, Greece.*

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## Training experience

- 2017– **Visiting Professor.** *Deep Learning for Vision*, Research in Computer Science (SIF) interdepartmental master, University of Rennes 1, University of Southern Brittany (UBS), ENS Rennes, National Institute of Applied Sciences, Rennes (INSA), CentraleSupélec.
- 2007–2014 **Lecturer (407/80).** *Image and Video Analysis*, School of Electrical and Computer Engineering, NTUA.
- 2007 **Organizing Committee member.** *Summer School on Multimedia Semantics: Analysis, Annotation, Retrieval and Applications [SSMS 2007]*, Glasgow, UK, July 15-21, 2007.
- 2006 **Organizing Committee member.** *Summer School on Multimedia Semantics: Analysis, Annotation, Retrieval and Applications [SSMS 2006]*, Chalkidiki, Greece, September 4-8, 2006.
- 2006–2014 **Assistant lecturer.** *Signals and Systems*, School of Electrical and Computer Engineering, NTUA.
- 2005–2006 **Lecturer (407/80).** *Signals and Systems*, School of Electrical and Computer Engineering, NTUA.
- 2003–2005 **Seminar organizer.** *Research and Technology Training Network on Multimedia Knowledge Discovery and Management [MULTI-MINE]*.
- 1996–1999 **Assistant lecturer.** *Analog Electronic Systems*, School of Electrical and Computer Engineering, NTUA.
- 1996–1998 **Assistant lecturer.** *Digital Image Processing*, School of Electrical and Computer Engineering, NTUA.
- 1998–2000 **Lecturer.** *Pascal programming language*, Department of Computer Science, Hellenion University of Portsmouth.
- 1998–2000 **Lecturer.** *C programming language*, Department of Computer Science, Hellenion University of Portsmouth.

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## Professional memberships

- 2001– European Signal Processing Society [EURASIP]  
1998– Association of Computing Machinery [ACM]  
1996– Institute of Electrical and Electronics Engineers [IEEE]  
1994– Technical Chamber of Greece [GTC]  
1994– Hellenic Association of Mechanical & Electrical Engineers [HAMEE]

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## Ph.D. supervision

- 2016– *Oriane Siméoni.* Invariance and supervision in visual learning.
- 2013– *Nikos Papanelopoulos.* Visual sketch retrieval.
- 2009–2014 *Yannis Kalantidis.* Web-scale image search, clustering and localization.
- 2008–2016 *Christos Varytimidis.* Local feature detection for visual information retrieval.
- 2008–2013 *Giorgos Tolia.* Large scale object-based image retrieval.
- 2005–2009 *Vaggelis Spyrou.* Semantic search of audiovisual content using knowledge.
- 2004–2009 *Thanos Athanasiadis.* Knowledge technologies and access to audiovisual information.
- 2005–2008 *Phivos Mylonas.* Adaptive multimedia content access based on context and user profiles.

- 2004–2008 *Konstantinos Rapantzikos*. Visual saliency models for the analysis of static and moving images.
- 2003–2006 *Manolis Wallace*. Intelligent knowledge-based systems in uncertain environments.

### Diploma Thesis supervision

- 2015–2016 *Hoel Kervadec*. Deep Hough networks for object detection.
- 2013–2014 *Athanasios Papadopoulos*. Geometric Descriptor Aggregation for Image Retrieval and Classification.
- 2013–2014 *Georgios Perakis*. License Plate Detection and Recognition Using Local Features.
- 2011–2012 *Christos Arvanitis*. Computer Vision Methods for Augmented Reality.
- 2011–2012 *Agni Delvinioti*. Image Classification by Spatial Matching and Indexing.
- 2011–2012 *Spyros Leonardos*. Natural Image Segmentation by Medial Axis Decomposition.
- 2011–2012 *Charalampos Moustafelos*. Image Search Using Visual Synonyms.
- 2008–2009 *Georgios Koumoulos*. Image Analysis and Retrieval by Local Feature Detection.
- 2007–2008 *Yannis Kalantidis*. Image Search Using Visual Features and Geometry.
- 2007–2008 *Christos Varytimidis*. Object Detection and Interactive Image Annotation.
- 2006–2007 *Giorgos Tolias*. Object Detection and Scene Classification Using MPEG-7 Descriptors and Visual Thesaurus.
- 2005–2006 *Vassiliki Giannekou*. Image Matching by Shape Analysis.
- 2004–2005 *Georgios Koumoulos*. Image Sequence Summarization—Shot Detection and Key Frame Selection.

### Research and development projects [European]

- 2008–2011 *Principal Investigator and Coordinator*. FP7-215453 / IP: WeKnowIt, Emerging, Collective Intelligence for personal, organisational and social use.
- 2008–2010 *Principal Investigator*. FP7-214306 / IP: JUMAS, Judicial Management by Digital Libraries Semantics.
- 2006–2008 *Principal Investigator*. FP6-034626 / STREP: Imagination, Image-Based Navigation in Multimedia Archives.
- 2006–2008 *Principal Investigator*. FP6-027538 / STREP: BOEMIE, Bootstrapping Ontology Evolution with Multimedia Information Extraction.
- 2006–2009 *Principal Investigator*. FP6-027685 / IP: MESH, Multimedia Semantic Syndication for Enhanced News Services.
- 2006–2010 *Principal Investigator*. FP6-26978 / IP: X-Media, Knowledge Sharing and Reuse Across Media.
- 2006–2008 *Principal Investigator*. FP6-027026 / NoE: K-Space, Knowledge Space of Semantic inference for automatic annotation and retrieval of multimedia content.
- 2004–2007 *Principal Investigator*. FP6-507752 / NoE: MUSCLE, Multimedia Understanding through Semantics, Computation and Learning.
- 2004–2007 *Principal Investigator*. FP6-001765 / IP: aceMedia, Integrating Knowledge, Semantics and Content for User-Centred Intelligent Media Services.
- 2002–2004 *Principal Investigator and Coordinator*. IST-2001-32504: MIRROR, World Communities of Practice for Learning and Innovation in Natural Science.
- 2001–2003 *Principal Investigator and Technical Leader*. IST-1999-20502: FAETHON, Unified Intelligent Access to Heterogeneous Audiovisual Content.
- 1997–2000 *Researcher*. Training and Mobility of Research: PHYSTA, Principled Hybrid Systems Theory and Applications.

- 1997–1999 *Researcher*. Educational Multimedia Task Force: MODULATES, Multimedia Organization for Developing the Understanding and Learning of Advanced Technology in European Schools.
- 1996–1999 *Researcher*. ESPRIT 22266 (Multimedia Support Centers): MCUBE, Mediterranean Multimedia - Multimedia Support Center for Culture and Arts.
- 1993–1996 *Researcher*. Human Capital and Mobility: MANADIX, Motion Analysis in Advanced Image Communication Systems.

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### Research and development projects [national]

- 2006–2008 *Researcher*. Image, Sound and Language Processing: Iconognosia, Management and Advanced Access to Scientific Data and Documentation of Byzantine Works of Art.
- 2006–2008 *Principal Investigator*. Image, Sound and Language Processing: DELTIO, Multimedia Content Analysis using Ontology Evolution with Application to TV News Programs.
- 2005–2008 *Principal Investigator*. PENED: OntoMedia, Semantic Multimedia Content Analysis Using Knowledge Technologies.
- 2004–2007 *Principal Investigator*. EPAN-03DSBEPRO-44: VisualAsset, Multimedia Document Analysis, Information Extraction and Management.
- 2003–2005 *Principal Investigator*. EPAN: MULTI-MINE, Research and Technology Training Network in Multimedia Knowledge Discovery and Management.
- 1999–2001 *Researcher*. EPET II - EKBAN: PANORAMA, An Intelligent System for Retrieval and Mining of Audiovisual Material.
- 1997–2000 *Researcher*. SYN-96: Development of a Video-on-Demand System Using the MPEG-2 Standard.
- 1997–1999 *Researcher*. EPET II Service Providing Laboratories: Image, Video and Multimedia Systems Laboratory (IVML).
- 1995–1997 *Researcher*. EKBAN-504: NIKA, Generalized Medical Image Processing and Management System.

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### Professional activities

- 2017 *Area Chair*: *Multimedia Search and Recommendation*. 25th ACM Multimedia Conference [ACM-MM 2017], Mountain View, CA, USA, October 23-27, 2017.
- 2017 *Area Chair*: *Image, Video, and Multimedia Processing*. 25th European Signal Processing Conference [EUSIPCO 2017], Kos, Greece, August 28–September 2, 2017.
- 2009 *Program Chair*. ACM International Conference on Image and Video Retrieval [CIVR 2009], Santorni, Greece, July 8-10, 2009.
- 2009 *General Chair*. 7th International Workshop on Content-Based Multimedia Indexing [CBMI 2009], Chania, Greece, June 3-5, 2009.
- 2009 *Program Chair*. 15th International Multimedia Modeling Conference [MMM 2009], Sophia-Antipolis, France, January 7-9, 2009.
- 2007 *General Chair*. Second International Conference on Semantic and Digital Media Technologies [SAMT 2007], Genova, Italy, December 5-7, 2007.
- 2007 *General Chair*. 8th International Workshop on Image Analysis for Multimedia Interactive Services [WIAMIS 2007], Santorini, Greece, June 6-8, 2007.
- 2006 *Organizer*. IST Event 2006 - Workshop on Knowledge in Multimedia Content [KMC 2006], Helsinki, Finland, November 22, 2006.

- 2006 *Organizer*. EKAW Workshop on Ontology Evolution and Multimedia Information Extraction [BOEMIE 2006], Podebrady, Czech Republic, October 2-6, 2006.
- 2006 *Organizer*. Special Session on “Semantic Multimedia Analysis for Annotation and Retrieval”, International Conference on Visual Information Engineering [VIE 2006], Bangalore, India, September 26-28, 2006.
- 2006 *Organizer*. Special Session on “Neural Networks for Semantic Image and Video Analysis”, International Conference on Artificial Neural Networks [ICANN 2006], Athens, Greece, September 10-14, 2006.
- 2006 *Local Organizing Committee member*. International Conference on Artificial Neural Networks [ICANN 2006], Athens, Greece, September 10-14, 2006.
- 2006 *General Chair*. First International Conference on Semantic and Digital Media Technologies [SAMT 2006], Athens, Greece, December 6-8, 2006.
- 2005 *Special Sessions Organizer*. 2nd European Workshop on the Integration of Knowledge, Semantic and Digital Media Technologies [EWIMT], London, UK, November 30 - December 1, 2005.
- 2005 *Co-Organizer*. Special Session on “Intelligent Multimedia and Semantics”, International Conference on Artificial Neural Networks [ICANN 2006], Warsaw, Poland, September 11-15, 2005.
- 2005 *Programme Chair*. Closing Workshop of Research and Technology Training Network on Multimedia Knowledge Discovery and Management [MULTI-MINE 2005], Athens, Greece, June 28, 2005.
- 2005 *Local Arrangements*. Workshop on Multimedia and the Semantic Web, 2nd European Semantic Web Conference [ESWC 2005], Heraklion, Greece, May 29 - June 1, 2005.
- 2004 *Session Chair*. EU Project Session, International Conference on Image and Video Retrieval [CIVR 2004], Dublin, Ireland, July 21-23, 2004.
- 2003 *Programme Co-Chair*. Workshop on “Intelligent Access to Audiovisual Content” [WIAAC], Athens, Greece, April 3, 2003.
- 2001 *Liaison with Industry, Local Organization Committee*. International Workshop on Very Low Bitrate Video Coding [VLBV 2001], Athens, Greece, October 11-12, 2001.
- 1997 *Local Arrangements*. Workshop on “Applications and Perspectives of Neural Network Technology in Greece and the Broader Balkan Area”, Athens, Greece, February 21, 1997.

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## Reviewer in journals

- 2014– ACM Computing Surveys [CSUR]
- 2012– Elsevier: Image and Vision Computing [IVC]
- 2009– *Associate Editor*. EURASIP Journal on Image and Video Processing [JIVP]
- 2008– Elsevier: Computer Vision and Image Understanding [CVIU]
- 2007– Elsevier: Neurocomputing [NEUCOM]
- 2006– Elsevier: Signal Processing: Image Communication [SP:IC]
- 2006– IEEE Transactions on Evolutionary Computation [TEVC]
- 2005– IEEE Transactions on Multimedia [TMM]
- 2004– IEE Proceedings on Vision, Image and Signal Processing [IEE-VIS]
- 2004– IEEE Transactions on Circuits and Systems for Video Technology [CSVT]
- 2004– IEEE Transactions on Pattern Analysis and Machine Intelligence [TPAMI]
- 2004– Kluwer: Multimedia Tools and Applications [MTAP]
- 2004– Springer: Pattern Analysis and Applications [PAA]

- 2003– EURASIP Journal of Applied Signal Processing [JASP]
- 2002– IEEE Transactions on Image Processing [TIP]
- 2002– Springer: Machine Vision and Applications [MVA]

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### Program Committee member in conferences

- 2013– International Conference on Computer Vision [ICCV]
- 2013– IEEE Conference on Computer Vision and Pattern Recognition [CVPR]
- 2012– European Conference on Computer Vision [ECCV]
- 2012– British Machine Vision Conference [BMVC]
- 2012– ACM International Conference on Multimedia Retrieval [ICMR]
- 2009– International Multimedia Modeling Conference [MMM]
- 2009– International Conference on Digital Signal Processing [DSP]
- 2007– ACM Multimedia Conference [ACM-MM]
- 2007– European Signal Processing Conference [EUSIPCO]
- 2007– International Conference on Multimedia and Expo [ICME]
- 2006– International Conference on Visual Information Engineering [VIE]
- 2006– IEEE International Symposium on Circuits and Systems [ISCAS]
- 2005– IEEE International Conference on Acoustics, Speech, and Signal Processing [ICASSP]
- 2004– IEEE International Conference in Image Processing [ICIP]
- 2002– International Conference on Artificial Neural Networks [ICANN]

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### Program Committee member in workshops

- 2006 ESWC Workshop on Mastering the Gap: From Information Extraction to Semantic Representation [MTG]
- 2006 International Workshop on Semantic Web Annotations for Multimedia [SWAMM]
- 2005 European Workshop on the Integration of Knowledge, Semantic and Digital Media Technologies [EWIMT]
- 2005– Workshop on Image Analysis for Multimedia Interactive Services [WIAMIS]
- 2003– International Workshop on Content-Based Multimedia Indexing [CBMI]
- 2001– International Workshop on Very Low Bitrate Video Coding [VLBV]

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### Invited talks

- 3/2016 *Large scale clustering and nearest neighbor search.* In 38th Pattern Recognition and Computer Vision Colloquium, Center for Machine Perception, Czech Technical University in Prague, Czech Republic.
- 1/2016 *Geometry in shape decomposition, feature detection, matching, retrieval, clustering, and nearest neighbor search.* Institute of Computer Science, Foundation for Research and Technology–Hellas (FORTH), Heraklion, Greece.
- 11/2015 *Clustering and nearest neighbor search.* Laboratory of Algebraic and Geometric Algorithms (EρΓA), National and Kapodistrian University of Athens, Greece.
- 6/2015 *Geometry in feature detection, matching, search, and clustering.* General Robotics, Automation, Sensing & Perception (GRASP) Laboratory, University of Pennsylvania, USA.
- 3/2015 *Approximate nearest neighbor search: binary codes and vector quantization.* Laboratory of Algebraic and Geometric Algorithms (EρΓA), National and Kapodistrian University of Athens, Greece.
- 10/2014 *Image retrieval, vector quantization and nearest neighbor search.* In  $\mu$ -Workshop on Computer Vision, TEXMEX Research Team, INRIA Rennes–Bretagne Atlantique, France.

- 4/2012 *Image Matching and Visual Search*. Management of Data, Information and Knowledge (MADGIK) Group, National and Kapodistrian University of Athens, Greece.
- 3/2011 *Image matching and visual search: local features and geometry*. University of Bordeaux, France.
- 9/2006 *Semantic multimedia content analysis*. In Workshop on Knowledge in Multimedia Content, IST Event 2006, Helsinki, Finland.

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## Publications

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### Theses

- [T3] Y. Avrithis. “Video Sequence Analysis for Content Description, Summarization and Content-Based Retrieval”. PhD thesis. Greece: School of Electrical and Computer Engineering, National Technical University of Athens, Feb. 2001.
- [T2] Y. Avrithis. “Investigating the Capacity of a Cellular CDMA System”. MA thesis. UK: Department of Electrical and Electronic Engineering, Imperial College of Science, Technology and Medicine, University of London, Oct. 1994.
- [T1] Y. Avrithis. “Fuzzy Logic Processor for Control Systems”. MA thesis. Greece: School of Electrical and Computer Engineering, National Technical University of Athens, Sept. 1993.

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### Edited volumes

- [V3] B. Huet, A.F. Smeaton, K. Mayer-Patel, and Y. Avrithis, eds. *Advances in Multimedia Modeling*. Vol. 5371. Lecture Notes in Computer Science. Springer, Jan. 2009. ISBN: 978-3-540-92891-1.
- [V2] B. Falcidieno, M. Spagnuolo, Y. Avrithis, I. Kompatsiaris, and P. Buitelaar, eds. *Semantic Multimedia*. Vol. 4816. Lecture Notes in Computer Science. Springer, Dec. 2007. ISBN: 978-3-540-77033-6.
- [V1] Y. Avrithis, Y. Kompatsiaris, S. Staab, and N. O’Connor, eds. *Semantic Multimedia*. 1st. Vol. 4306. Lecture Notes in Computer Science. Springer, Dec. 2006. ISBN: 978-3-540-49335-8.

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### Journal articles

- [J26] C. Varytimidis, K. Rapantzikos, Y. Avrithis, and S. Kollias. “ $\alpha$ -shapes for local feature detection”. In: *Pattern Recognition* 50.1 (Feb. 2016), pp. 56–73.
- [J25] G. Toliás, Y. Avrithis, and H. Jégou. “Image search with selective match kernels: aggregation across single and multiple images”. In: *International Journal of Computer Vision* 116.3 (Feb. 2016), pp. 247–261.
- [J24] C. Varytimidis, K. Rapantzikos, Y. Avrithis, and S. Kollias. “Dithering-based Sampling and Weighted  $\alpha$ -shapes for Local Feature Detection”. In: *IPSI Transactions on Computer Vision and Applications* 7 (2015), pp. 189–200.
- [J23] G. Toliás, Y. Kalantidis, Y. Avrithis, and S. Kollias. “Towards large-scale geometry indexing by feature selection”. In: *Computer Vision and Image Understanding* 120.3 (Mar. 2014), pp. 31–45.
- [J22] Y. Avrithis and G. Toliás. “Hough Pyramid Matching: Speeded-up geometry re-ranking for large scale image retrieval”. In: *International Journal of Computer Vision* 107.1 (Mar. 2014), pp. 1–19.
- [J21] G. Evangelopoulos, A. Zlatintsi, A. Potamianos, P. Maragos, K. Rapantzikos, G. Skoumas, and Y. Avrithis. “Multimodal Saliency and Fusion for Movie Summarization based on Aural, Visual, and Textual Attention”. In: *IEEE Transactions on Multimedia* 15.7 (Nov. 2013), pp. 1553–1568.

- [J20] K. Rapantzikos, Y. Avrithis, and S. Kollias. “Spatiotemporal features for action recognition and salient event detection”. In: *Cognitive Computation (Special Issue on Saliency, Attention, Visual Search and Picture Scanning)* 3.1 (Mar. 2011). Ed. by J. G. Taylor and V. Cutsuridis, pp. 167–184.
- [J19] Y. Kalantidis, G. Toliás, Y. Avrithis, M. Phinikettos, E. Spyrou, P. Mylonas, and S. Kollias. “VIRaL: Visual Image Retrieval and Localization”. In: *Multimedia Tools and Applications* 51.2 (Jan. 2011), pp. 555–592.
- [J18] K. Rapantzikos, N. Tsapatsoulis, Y. Avrithis, and S. Kollias. “Spatiotemporal Saliency for Video Classification”. In: *Signal Processing: Image Communication* 24.7 (Aug. 2009), pp. 557–571.
- [J17] Ph. Mylonas, E. Spyrou, Y. Avrithis, and S. Kollias. “Using Visual Context and Region Semantics for High-Level Concept Detection”. In: *IEEE Transactions on Multimedia* 11.11 (Feb. 2009), pp. 229–243.
- [J16] E. Spyrou, G. Toliás, P. Mylonas, and Y. Avrithis. “Concept detection and keyframe extraction using a visual thesaurus”. In: *Multimedia Tools and Applications* 41.3 (Feb. 2009), pp. 337–373.
- [J15] Ph. Mylonas, Th. Athanasiadis, M. Wallace, Y. Avrithis, and S. Kollias. “Semantic Representation of Multimedia Content—Knowledge Representation and Semantic Indexing”. In: *Multimedia Tools and Applications* 39.3 (Sept. 2008), pp. 293–327.
- [J14] Ph. Mylonas, D. Vallet, P. Castells, M. Fernandez, and Y. Avrithis. “Personalized information retrieval based on context and ontological knowledge”. In: *Knowledge Engineering Review* 23.1 (Mar. 2008), pp. 73–100.
- [J13] Th. Athanasiadis, Ph. Mylonas, Y. Avrithis, and S. Kollias. “Semantic Image Segmentation and Object Labeling”. In: *IEEE Transactions on Circuits and Systems for Video Technology* 17.3 (Mar. 2007), pp. 298–312.
- [J12] D. Vallet, P. Castells, M. Fernández, Ph. Mylonas, and Y. Avrithis. “Personalized Content Retrieval in Context Using Ontological Knowledge”. In: *IEEE Transactions on Circuits and Systems for Video Technology* 17.3 (Mar. 2007), pp. 336–346.
- [J11] G. Th. Papadopoulos, Ph. Mylonas, V. Mezaris, Y. Avrithis, and I. Kompatsiaris. “Knowledge-Assisted Image Analysis Based on Context and Spatial Optimization”. In: *International Journal on Semantic Web and Information Systems* 2.3 (July 2006), pp. 17–36.
- [J10] K. Rapantzikos, N. Tsapatsoulis, Y. Avrithis, and S. Kollias. “A Bottom-Up Spatiotemporal Visual Attention Model for Video Analysis”. In: *IET Image Processing* 1.2 (June 2007), pp. 237–248.
- [J9] K. Petridis, S. Bloehdorn, C. Saathoff, N. Simou, S. Dasiopoulou, V. Tzouvaras, S. Handschuh, Y. Avrithis, I. Kompatsiaris, and S. Staab. “Knowledge Representation and Semantic Annotation of Multimedia Content”. In: *IEE Proceedings on Vision, Image and Signal Processing (Special Issue on Knowledge-Based Digital Media Processing)* 153.3 (June 2006), pp. 255–262.
- [J8] M. Wallace, Y. Avrithis, and S. Kollias. “Computationally efficient sup-t transitive closure for sparse fuzzy binary relations”. In: *Fuzzy Sets and Systems* 157.3 (Feb. 2006), pp. 341–372.
- [J7] M. Wallace, Th. Athanasiadis, Y. Avrithis, A. Delopoulos, and S. Kollias. “Integrating Multimedia Archives: The Architecture and the Content Layer”. In: *IEEE Transactions on Systems, Man, and Cybernetics, Part A: Systems and Humans* 36.1 (Jan. 2006), pp. 34–52.
- [J6] Y. Avrithis, G. Stamou, M. Wallace, F. Marques, P. Salembier, X. Giro, W. Haas, H. Vallant, and M. Zufferey. “Unified Access to Heterogeneous Audiovisual Archives”. In: *Journal of Universal Computer Science* 9.6 (June 2003), pp. 510–519.
- [J5] N. Tsapatsoulis, Y. Avrithis, and S. Kollias. “Facial Image Indexing in Multimedia Databases”. In: *Pattern Analysis and Applications (Special Issue on Image Indexation)* 4.2–3 (June 2001), pp. 93–107.



- [J4] Y. Avrithis, Y. Xirouhakis, and S. Kollias. “Affine-Invariant Curve Normalization for Object Shape Representation, Classification and Retrieval”. In: *Machine Vision and Applications* 13.2 (Nov. 2001), pp. 80–94.
- [J3] A. Doulamis, N. Doulamis, Y. Avrithis, and S. Kollias. “A Fuzzy Video Content Representation for Video Summarization and Content-Based Retrieval”. In: *Signal Processing (Special Issue on Fuzzy Logic in Signal Processing)* 80.6 (June 2000), pp. 1049–1067.
- [J2] N. Doulamis, A. Doulamis, Y. Avrithis, K. Ntalianis, and S. Kollias. “Efficient Summarization of Stereoscopic Video Sequences”. In: *IEEE Transactions on Circuits and Systems for Video Technology (Special Issue on 3D Video Technology)* 10.4 (June 2000), pp. 501–517.
- [J1] Y. Avrithis, A. Doulamis, N. Doulamis, and S. Kollias. “A Stochastic Framework for Optimal Key Frame Extraction from MPEG Video Databases”. In: *Computer Vision and Image Understanding (Special Issue on Content-Based Access of Image and Video Libraries)* 75.1–2 (July 1999), pp. 3–24.

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### Conference proceedings

- [C103] A. Iscen, G. Tolia, Y. Avrithis, T. Furon, and O. Chum. “Efficient Diffusion on Region Manifolds: Recovering Small Objects with Compact CNN Representations”. In: *Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2017)*. Honolulu, Hawaii, US, July 2017.
- [C102] R. Sicre, J. Rabin, Y. Avrithis, T. Furon, and F. Jurie. “Unsupervised part learning for visual recognition”. In: *Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2017)*. Honolulu, Hawaii, US, July 2017.
- [C101] A. Iscen, G. Tolia, Y. Avrithis, T. Furon, and O. Chum. “Panorama to Panorama Matching for Location Recognition”. In: *Proceedings of ACM International Conference on Multimedia Retrieval (ICMR 2017)*. Bucharest, Romania, June 2017.
- [C100] Y. Avrithis, I. Emiris, and G. Samaras. “High-Dimensional Visual Similarity Search: k-d Generalized Randomized Forests”. In: *Proceedings of the 33rd Computer Graphics International (CGI 2016)*. ACM. Heraklion, Greece, 2016, pp. 25–28.
- [C99] Y. Avrithis, Y. Kalantidis, E. Anagnostopoulos, and I. Z. Emiris. “Web-scale image clustering revisited”. In: *Proceedings of International Conference on Computer Vision (Oral) (ICCV 2015)*. Santiago, Chile, Dec. 2015.
- [C98] N. Papanelopoulos and Y. Avrithis. “Planar shape decomposition made simple”. In: *Proceedings of British Machine Vision Conference (BMVC 2015)*. Swansea, UK, Sept. 2015.
- [C97] M. Shi, Y. Avrithis, and H. Jégou. “Early burst detection for memory-efficient image retrieval”. In: *Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2015)*. Boston, MA, US, June 2015.
- [C96] C. Varytimidis, K. Rapantzikos, Y. Avrithis, and S. Kollias. “Improving local features by dithering-based image sampling”. In: *Proceedings of Asian Conference on Computer Vision (ACCV 2014)*. Singapore, Nov. 2014.
- [C95] Y. Kalantidis and Y. Avrithis. “Locally Optimized Product Quantization for Approximate Nearest Neighbor Search”. In: *Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2014)*. Columbus, Ohio, US, June 2014.
- [C94] Y. Avrithis. “Quantize and Conquer: A dimensionality-recursive solution to clustering, vector quantization, and image retrieval”. In: *Proceedings of International Conference on Computer Vision (ICCV 2013)*. Sydney, Australia, Dec. 2013.
- [C93] G. Tolia, Y. Avrithis, and H. Jégou. “To aggregate or not to aggregate: selective match kernels for image search”. In: *Proceedings of International Conference on Computer Vision (Oral) (ICCV 2013)*. Sydney, Australia, Dec. 2013.
- [C92] C. Varytimidis, K. Rapantzikos, and Y. Avrithis. “Weighted  $\alpha$ -Shapes for Local Feature Detection”. In: *Proceedings of European Conference on Computer Vision (ECCV 2012)*. Florence, Italy, Oct. 2012.

- [C91] Y. Avrithis and Y. Kalantidis. “Approximate Gaussian Mixtures for Large Scale Vocabularies”. In: *Proceedings of European Conference on Computer Vision (ECCV 2012)*. Florence, Italy, Oct. 2012.
- [C90] G. Tolias, Y. Kalantidis, and Y. Avrithis. “SymCity: Feature Selection by Symmetry for Large Scale Image Retrieval”. In: *Proceedings of ACM Multimedia (Full paper) (MM 2012)*. Nara, Japan: ACM, Oct. 2012.
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