Manuele Bicego
Curriculum vitae

Personal Data

Position and Affiliation:

Associate Professor (Professore associato – s.s.d. ING/INF-05)
Dipartimento di Informatica – Università degli Studi di Verona
Strada Le Grazie, 15 - 37134 Verona (Italia)

Contacts:

(Mail) manuele.bicego@univr.it
(T) +390458027072
(F) +390458027068
(Webpage) `http://profs.sci.univr.it/~bicego/`

Memberships:

- VIPS Lab, University of Verona (`http://vips.scienze.univr.it/`)
- Center for BioMedical Computing, University of Verona (`http://www.cbmc.it/`)
- IEEE (`www.ieee.org`)
- IAPR (International Association of Pattern Recognition): CVPL (`http://www.cvpl.it/`)
- IAPR T.C. 20: Pattern Recognition for bioinformatics (`http://iaprtc20.mosuma.org/`)

Contents

1 Education and previous positions

1.1 Education

- (March 2003): **PhD** in Computer Science: Computer Science Department of University of Verona, thesis title: "Hidden Markov Models for Pattern Recognition and Computer Vision: methodological issues and applications". Supervisor Prof. Vittorio Murino. Reviewers: Prof. Fabio Roli, Prof. Anil K. Jain

- (December 1999): **Laurea degree (MS)** in Computer Science: University of Verona, thesis title: "Realizzazione e sviluppo di un sistema di classificazione degli odori basato su *array* di sensori chimici"(Realization and development of a chemical sensors array-based electronic nose). Supervisors: Prof. G. Tecchiolli, Prof. G. Tessari and Prof. M. Bettinelli.

1.2 Previous positions

- (October 2008 – June 2017): *Assistant Professor* (Ricercatore Universitario – s.s.d. ING/INF-05) at the University of Verona (Italy)

- (June 2009 - February 2011): *Team Leader* of PAVIS (Pattern Analysis and Computer Vision) department at Italian Institute of Technology (IIT - Istituto Italiano di Tecnologia), Genova (Italy)

- (June 2005 – September 2008) *Assistant Professor* (Ricercatore Universitario – s.s.d. ING/INF-05) at the University of Sassari (Italy)

- (February 2004 – May 2005): *Post-Doc Fellow* at the University of Sassari (Italy)

- (March 2003 – December 2003): *Post-Doc Fellow* at the University of Verona (Italy)

2 Research Activity

2.1 Research Interests

Manuele Bicego's research is mainly focused on Pattern Recognition, namely on the study and development of automatic techniques and models able to extract information from real world data, typically in terms of classes or clusters. His main expertise is on probabilistic models - like Hidden Markov Models, Mixtures, Topic Models - and on kernel machines - like Support Vector Machines. In these contexts he is interested in designing novel models/methodologies, like hybrid generative-discriminative methods, generative embeddings and kernels, novel classification or clustering schemes, model selection techniques and others. He likes to reason on representation issues (how to extract features, how to process the original problem space) as well as on unconventional employment of standard techniques (like boosting or SVM for clustering). He is also very interested in the processing of sequential data (where his favorite tool is Hidden Markov Model).

At the same time, he is involved in application-driven research, where the novel approaches can be tested with challenging real world problems, as well as adapted and tailored in order to derive specific context dependent solutions. In this respect, examples of application areas are object recognition from images, videosurveillance and video analysis, person recognition and authentication from images and videos (and, more in general, biometrics), and, more recently, seismic signals analysis and bioinformatics. In this last context his main focus in on designing solutions for the analysis of "counting data" - namely data which express the level of presence of entities (e.g. gene expression data, or proteomics data) - using probabilistic graphical models like topic models. The main goal in his research is to devise highly interpretable solutions, being interpretability of methods and solutions the most stringent need in nowadays bioinformatics research.

Keywords

- *Mehtodological aspects*: Mixture Models, Hidden Markov Models, Topic Models, Graphical Models, Factor Graphs, Generative Kernels, Information Theoretic Kernels, One Class Support Vector Machines, Model Selection, Clustering and Biclustering, Dissimilarity-based representation, Random Forests, Nearest-Neighbor techniques, Bag of words

- *Applicative aspects*: Analysis of expression data – genes or proteins (classification, clustering and biclustering), NMR spectra analysis, Protein Remote Homology detection, Tumor and self-immune diseases classification, protein-lingand interaction modelling, MRI image analysis, Object recognition, video surveillance, Biometrics (face and behaviour), Seismic signal analysis, Odor Classification, Optical microscopy, Financial signal analysis

2.2 Participation to research projects

- UNIVR (call "Bando Internazionalizzazione di Ateneo 2018 - Azione 4 - CATEGORIA B"): *Investigation of advanced pattern recognition techniques for the understanding of Parkinson's desease via the analysis of patch-clamp recordings of the striatum*, Object: investigation of advanced techniques for representation and classification of Parkinson data, derived from advanced recording instruments of neuronal activity. Partner: Francisco Escolano (University of Alicante, Alicante (Spain). **Role: Coordinator.**

- UNIVR (call "Bando di Ateneo per la Ricerca di Base" - 2015): *Beyond the Bag of Words paradigm: a structural and statistical perspective (BeBoW)*, Object: analysis of advanced representation and modelling techniques based sul Bag of Words, Partner: David Tax (Delft University of Technology, Delft (The Netherlands). **Role: Coordinator.** (2017-2019)

- EU-H2020 (project call WATER-1-2014/2015): *Development and application of Novel, Integrated Tools for monitoring and managing Catchments (INTCATCH)*, Object: advanced techniques for monitoring and managaments of lakes and rivers. **Role: research activity** (2016 - 2020).

- UNIVR (COOPERINT 2015 project – Action 4): *Investigation of advanced probabilistic techniques for the detection of Autism Spectrum Disorder in children through imitation games*, Partner: Prof. Mohamed Chetouani – Universitè Pierre et Marie Curie, Paris (FRANCE). **Role: Coordinator**

- UNIVR (COOPERINT 2012 project – Action A2): *Dissimilarity-based representation for Pattern Recognition*, Partner: Bob Duin – Technical University of Delft (THE NETHERLANDS). **Role: Coordinator**

- UNIVR (COOPERINT 2011 project– Action A1): *Investigation and development of advanced probabilistic techniques for the automated identification of seismic-volcanic and bioacoustic signals*, Partner: Prof. Mauricio Orozco Alzate – Universidad Nacional de Colombia (COLOMBIA). **Role: Coordinator**

- UNIVR (COOPERINT 2010 project – Action B3): *Investigation of advanced Hidden Markov Models-related techniques for the analysis of seismic signals from multiple volcanos*, Partner: Mauricio Orozco-Alzate – Universidad Nacional de Colombia (COLOMBIA). **Role: Coordinator**

- EU-VII P.Q. (FET project number 213250): *Beyond Features: Similarity-based Pattern Analysis and Recognition (SIMBAD)*. **Role: research activity and support to coordination** (2008 - 2011).

- EU-VI P.Q. (project number IST-2002-507634): *Biometrics for Secure Authentication (BIOSECURE) Network of Excellence*. **Role: research activity** (2004 - 2007). Inside the network he also participated to the following Research Projects (Jan 2006 - Jun 2007):

  - *3D face verification using shape and texture*, Research Project 7.2.1.
  - *Biologically inspired face analysis based on selective attention*, Research Project 7.2.2.
  - *Subject specific face recognition*, Research Project 7.2.3.

- PRIVATE (TELECOM Italia): *TELECOM 03: Sistema di autenticazione biometrica basata sul riconoscimento del volto*, funded by TELECOM Italia. **Role: Research activity.** (2004)

- EU-V P.Q. (project number GRD1-2000-25409): *ARROV (Augmented Reality for Remotely Operated Vehicles based on 3D acoustical and optical sensors for underwater inspection and survey)*. **Role: Research activity.** (2001 – 2003)

- MIUR: *SPADA (Spatial Data and Geographic Information Systems).* **Role: research activity and support to coordination.** (2001 – 2002)

- PRIVATE (Hewlett Packard, "HP Philanthropic Program"): *SOL (The Sounding Landscape).* **Role: research activity.** (2001 – 2002)

2.3 Present and past collaborations

Institutions inside Italy

- University of Verona (collaborations inside the Computer Science Department of University of Verona are not reported): Dept. of Biotechnology; Dept. of Medicine; Dept. of Patology; Dept. of Neuroscience

- Italian Institute of Technology: Dept. of Pattern Analysis and Computer Vision; Dept. of Drug & Discovery; Dept. of Nanoscience;

- University of Sassari: Computer Vision Lab; Dept. of Economic sciences;

- CRS4, POLARIS, Pula - Cagliari;

- CNR, Istituto di Chimica Biomolecolatre (ICB) - Sassari;

- University of Venice: Dept. of Computer Science;

- University of Messina: Dept. of Cognitive Sciences, Educational and Cultural Studies;

Institutions outside Italy

- Instituto Superior Técnico, Lisbona, Portugal

- Delft University of Technology, Delft, The Netherlands

- Universidad Nacional de Colombia, Manizales, Colombia

- Universidad de Alicante, Alicante, Spain

- Microsoft Research, Seattle, US

- University of Oxford, Oxford, UK

- ETH, Zurigo, Switzerland

- School of Computer Science, University of Manchester, Manchester, UK

- Queen Mary College, London, UK

- Bogazici University, Istanbul, Turkey

- University of Vigo, Vigo, Spain

- University of A Coruna, A Coruna, Spain

- CWI (Center for Mathematics and Informatics), Amsterdam, The Netherlands

2.4 Visits and exchanges

- [Mar-Sep 2018], Visit (6.5 months): Department of Computer Science and Artificial Intelligence, University of Alicante, Alicante (Spain)
- [Feb 2018]: Visitor (1 week): Marco Loog, Information and Communication Theory Group of the Delft University of Technology of Delft (The Netherlands).
- [Feb 2018]: Visitor (1 week): David Tax, Information and Communication Theory Group of the Delft University of Technology of Delft (The Netherlands).
- [Sept-Dec 2017]: Visitor (2.5 months): Mauricio Orozco-Alzate, Department of Informatics and Computing of National University of Colombia (UNAL), Manizales (Colombia).
- [Sep 2016], Visit (1 month): Instituto Superior Técnico, Lisbon (Portugal)
- [May 2015], Visitor (1 month): Marco Loog, Delft University of Technology, Delft (The Netherlands).
- [Sep 2013], Visitor (1 month): Bob Duin, Delft University of Technology, Delft (The Netherlands).
- [Jun 2013], Visitor (1 month): Mauricio Orozco-Alzate, National University of Colombia (UNAL), Manizales (Colombia).
- [Oct-Dec 2011], Visit (3 months): Universidad Nacional de Colombia - Sede Manizales (Colombia)
- [Nov-Dec 2010], Visit (2 weeks): Instituto Superior Técnico, Lisbona (Portugal)
- [May-Jun 2008], Visit (2 weeks): Vigo University, Vigo (Spain)
- [Jun 2007]: Visitor (1 week): Bob Duin, Delft University of Technology, Delft (The Netherlands).
- [Jun 2007]: Visitor (1 week): David Tax, Delft University of Technology, Delft (The Netherlands).
- [Oct-Nov 2007]: Visitor (1.5 months): Daniel Gonzalez Jimenez, Vigo University, Vigo (Spain).
- [Jan 2007], Visit (1 week): Bogazici University, Istanbul (Turkey)
- [Nov-Dec 2006], Visit (1.5 month): Delft University of Technology, Delft (The Netherlands)
- [Oct 2006], Visit (2 weeks): Center for Mathematics and Computer Science, Amsterdam (The Netherlands)
- [Aug 2005], Visit (1 month): École nationale supérieure des télécommunications, Paris (France) – (Participation to the first *BIOSECURE Residential Workshop*, organized by BIOSECURE Network of Excellence)
- [Sep-Dec 2001], Visit (4 months): Instituto Superior Técnico, Lisbon (Portugal)

2.5 Scientific awards

- **SAC 2018: "Best poster award"**

  Description: Award assigned to the 4 best posters presented at the conference SAC 2018.

  Dettagli: Award received for the paper A. Castellini, G.A. Beltrame, M. Bicego, J.J. Blum, M. Denitto, A. Farinelli: "Unsupervised Activity Recognition for Autonomous Water Drones", Proc. ACM Symposium on Applied Computing (SAC2018), pp. 840-842, (2018)

- **CVPR Workshop on Biometrics 2014: "Highest Impact Award"**

  Description: Award assigned to the paper published in a past edition of the CVPR Biometrics Workshop that has generated highest impact on the research community.

  Details: Award received for the paper M. Bicego, A.Lagorio, E. Grosso, M. Tistarelli: On the use of SIFT features for face authentication, Proc. of IEEE CVPR Workshop on Biometrics (2006)

- **ICPRAM 2012: "Best student paper award" (Area: Theory and Methods)**

  Description: Award assigned to the best paper of the ICPRAM 2012 conference, in the area of Theory and Methods, in which the first author is a PhD or MS student.

  Details: Award received for the paper A. Carli, M. Figueiredo, M. Bicego, V. Murino: Generative Embeddings Based on Rician Mixtures: Application to Kernel-Based Discriminative Classification of Magnetic Resonance Images, Proc. of Int. Conf. on Pattern Recognition Applications and Methods (ICPRAM2012), (2012)

- **ICIAP 2007: "Best poster presentation award"**

  Description: Award assigned to the best paper presented as a poster at the ICIAP 2007 conference.

  Details: Award received for the paper M. Bicego, M. Cristani, V. Murino: Sparseness Achievement in Hidden Markov Models, Proc. Of IEEE Int. Conf. on Image Analysis and Processing (ICIAP 2007), pp. 67-72, (2007)

- **University of Sassari 2007 Research award (Premio produttività scientifica 2007)**

  Description: Award assigned to the best 20 scientists of the whole University of Sassari (selected among all Full Professors, Associated Professors, Assistant Professors, Post Doc and PhD students of scientific areas).

  Details: Award received for the years 2005-2006.

3 Dissemination

3.1 Talks

- 15 May 2018: *Advanced Bag of Words approaches for Pattern Recognition*, Department of Computer Science and Artificial Intelligence, University of Alicante, Alicante (Spagna)

- 16 Sept 2016: *Classification of 2D shapes using bioinformatics tools*, Instituto Superior Técnico, Lisbon (Portugal)

- 25 Sept 2015: *Deriving dissimilarities using bioinformatics tools*, Delft University of Technology, Delft (The Netherlands)

- 12-14 Dec 2011: *Short Tutorial on Hidden Markov Models and applications*, Department of Informatics and Computing, Universidad Nacional de Colombia, Manizales (Colombia)

- 5 Dec 2011: *Pattern Recognition for (from) Bioinformatics*, keynote speech at 7th Int. Seminar on Medical Information Processing and Analysis – Bucaramanga (Colombia), 5-7 Dec 2011

- 11 Nov 2011: *Generative Embeddings and Generative Kernels*, Department of Informatics and Computing, Universidad Nacional de Colombia, Manizales (Colombia)

- 26 May 2008: *Hidden Markov Models: methodologies, research trends and applications*, Signal Processing and Communications Dept., Vigo University (Spain)

- 29 Jan 2008: *Clustering di dati: principi e ricadute in bioinformatica*, Dipartimento di Informatica, University of Verona, Verona (Italy)

- 19 Jun 2007: *Pattern Recognition: concetti generali e applicazioni in Bioinformatica*, Dipartimento di Informatica, University of Verona, Verona (Italy)

- 12 Jan 2007: *Hidden Markov Models for face recognition: still images and video*, Computer Engineering Department, Bogazici University, Istanbul (Turkey)

- 18 Oct 2006: *Hidden Markov Models for face recognition: still images and video*, CWI, Amsterdam (The Netherlands)

- 27 Oct 2005: *Face Recognition: From Human to Machine Vision*, keynote speech at the Catalan Congress on Artificial Intelligence, Alghero 26-28 Oct 2005.

- 13 Dec 2004: *Hidden Markov Models per Pattern Recognition: aspetti metodologici e applicativi*, DIEE, University of Cagliari (Italy)

- 19 Oct 2001: *Hidden Markov Models: theory and application to 2D shape recognition* Instituto de Sistemas e Robòtica (ISR) - Instituto Superior Técnico - Lisbon (Portugal)

3.2 Presentations at conferences/workshops

ICIAP2019 (Oral), IJCNN2019 (Poster), EMMCVPR2017 (Oral), S+SSPR2016 (2 orals), ICIAP2015 (Poster), ICPR2014 (3 Poster), NIPS2013 (Poster), CIARP 2011 (Oral), ICPR 2010 (3 Orals), PRIB 2010 (Oral), S+SSPR2010 (Poster), CIP2010 (Poster), SUBSPACE09@ICCV2009 (Poster), EMMCVPR2009 (Poster), ICIAP2007 (2 Posters), HVEI 2007 (Oral), VISAPP 2006 (Poster), ICPR 2004 (Oral), URBAN 2003 (Oral), MLDM 2003 (Oral), MOTION 2002 (Oral), EMMCVPR 2001 (Poster)

3.3 Organization of PhD schools / Cycles of Seminars

- Co-organizer of PhD School "Partially Supervised Learning" (Prof. Marco Loog), Verona, 19-21 May 2015.

- Co-organizer of PhD School "Dissimilarity-based Representation for Pattern Recognition" (Prof. Bob Duin), Verona, 23-26 September 2013.

- Local Co-organizer of PhD School "Social Signal Processing: State Of The Art And Prospects" (Prof. A. Vinciarelli, Dr. D. Gatica-Perez), Sestri Levante (GE), 18-22 July 2010.

- Co-organizer of a cycle of seminars titled "Incontri su temi di Bioinformatica" (Meetings on Bioinformatics themes), Dept. of Computer Science of University of Verona, Feb – Apr 2009 (8 seminars)

- Local support, during 2004-2008, to different editions of the International Summer School on Biometrics, University of Sassari

4 Editorial Activities

4.1 Journals

- **Associate Editor** of *Pattern Recognition* (Jul 2016 -)

- **Associate Editor** of the *Electronic Letters on Computer Vision and Image Analysis* (Jan 2004 -)

- **Associate Editor** of the *International Journal on Imaging* – now *International Journal on Imaging and Robotics* – (July 2008 -)

- **Guest Editor** of *Pattern Recognition* for the special issue titled: "Similarity-based Pattern Recognition" (vol 39(10) - 2006)

- **Reviewer** for the following international journals: ACM Transactions on Intelligent Systems and Technology, Artificial Intelligence in Medicine, Bioinformatics, Computer Vision and Image Understanding, Electronic Letters on Computer Vision and Image Analysis, Expert Systems with Applications, Geophysical Journal International, IEE Electronic Letters, IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, IEEE Tranasctions on Knowledge and Data Engineering, IEEE Transactions on Geoscience and Remote Sensing, IEEE Transactions on Human-Machine Systems, IEEE Transactions on Image Processing, IEEE Transactions on Information Forensics and Security, IEEE Transactions on Neural Networks and Learning Systems, IEEE Transactions on Pattern Analysis and Machine Intelligence, IEEE Transactions on System Man and Cybernetics - Part A, IEEE Transactions on System Man and Cybernetics - Part B, IEEE Transactions on Sustainable Computing, Image and Vision Computing, Information Fusion, Int. Journal of Image and Graphics, International

Journal of Applied Evolutionary Computation, International Journal of Tomography & Statistics, Journal of Volcanology and Geothermal Research, Knowledge and Information Systems, Machine Vision and Applications, Neural Computing and Applications, Neurocomputing, Pattern Recognition Letters, Pattern Recognition, Photogrammetric Engineering and Remote Sensing, PLOS One, Sensors and Actuators B, The Photogrammetric Journal of Finland

4.2 Conferences

- **Publicity/Web Chair** of the *18th Int. Conf. on Image Analysis and Processing (ICIAP 2015)*, 7-11 September 2015, Genova, Italy
- **Invited Speaker Chair** of the *Int. Conf. on Pattern Recognition in Bioinformatics (PRIB 2011)*, 2-4 November 2011, Delft, The Netherlands
- **Demo Chair** of the *IAPR Int. Conf. on Biometrics (ICB 2009)*, 2 - 5 June 2009, Alghero, Italy
- **Member of the Scientific/Technical/Program/Reviewing Committee** of the following international conferences or workshops: VISAPP(2006, 2008), VIIP (2006, 2007, 2008), CompIMAGE (2006, 2010, 2012, 2014), VIPIMAGE (2007, 2009, 2013, 2015, 2017, 2019), ICGD&BC (2007), ADVCOMP (2007, 2008), ICIMP (2008, 2009, 2010), CIP (2008), HBU@ICPR (2010), IBPRIA (2011, 2013), SIMBAD (2011, 2013, 2015), IJCAI (2015), AALTD@ECML-PKDD (2015), NIPS (2014, 2015), ICPR (2008, 2014, 2016, 2018), BMVC (2016), S+SSPR (2016, 2018), BIOKDD (2016), ICIAP (2019)

5 Teaching and supervision

5.1 Teaching

- from AA 2016/17 to present: "Computational analysis of biological structures and networks", Master degree in Medical Bioinformatics, University of Verona.
- from AA 2009/10 to present: "Riconoscimento e recupero di Informazioni per bioinformatica" (Pattern Recognition for bioinformatics), Bachelor degree in Bioinformatics, University of Verona
- AA 2008/09: "Recupero dell'Informazione" (Information Retrieval), Bachelor degree in Bioinformatics, University of Verona.
- AA 2008/09: "Laboratorio di Algoritmi e Strutture Dati" (Laboratory of Algorithms and Data Structures), Bachelor degree in Bioinformatics, University of Verona.
- from AA 2003/04 to AA 2007/08: "Fondamenti di Informatica" (Basics of Computer Science), Bachelor degree in Economics and Tourism Management, University of Sassari.
- AA 2002/03: "Laboratorio di Sistemi e Segnali" (Laboratory of System Theory), Bachelor degree in Information Technologies: Multimedia, University of Verona

5.2 Thesis Supervision

- Supervisor of more than 50 thesis for the Bachelor degree in Bioinformatics, University of Verona
- Supervisor of 1 thesis for the Master Degree in Computer Science and Engineering, university of Verona
- Supervisor of 1 thesis for the Master Degree in Medical Bioinformatics, university of Verona
- Co-supervisor of 10 Master Degree thesis at Universities of Verona and Sassari

5.3 Supervision and revision of PhD thesis

- Member of the Council of the PhD School in Computer Science at the University of Verona (Italy): from 2009 to present
- Member of 13 PhD tutoring committees (PhD in Computer Science) at the University of Verona (23°, 24°, 27°, 28°, 29°, 31°, 32° and 34° cycle)
- Supervisor of Antonella Mensi (PhD student in Computer Science, University of Verona, 34° cycle), in progress
- Supervisor di Matteo Denitto (PhD student in Computer Science, University of Verona, 29° cycle), graduation: May 2017
- Supervisor of Pietro Lovato (PhD student in Computer Science, University of Verona, 27° cycle), graduation: May 2015
- Reviewer and member of the final defense committee for the thesis of Manuel Curado Navarro, "Structural similarity: applications to object recognition and clustering", University of Alicante, Dept. of Computer Science and Artificial Intelligence, PhD supervisors D. Francisco Escolano Ruiz and D. Juan Manuel SÃ¡ez MartÃnez (Sep 2018)
- Reviewer for the thesis of Michele Schiavinato, "Transformation Synchronization with Applications in Computer Vision", PhD in Computer Science, University of Venice, PhD supervisor: Andrea Torsello (Oct 2017)
- Reviewer for the thesis of Luca Magri, "Multiple structures recovery via preference analysis in conceptual space", Ph.D. in Mathematics and Statistic for the Computational Sciences, Dip. di Matematica "Federigo Enriques", PhD supervisors: Giovanni Naldi e Andrea Fusiello (Oct 2015)
- Reviewer and member of the final defense committee for the thesis of Y. Plasencia Calana, "Prototype selection for classification in standard and generalized dissimilarity spaces", Technical University of Delft, PhD Supervisors: Marcel Reinders e Bob Duin (September 2015)
- Member of the final defense committee for the thesis of Giulia Costantini, Gian-Luca Dei Rossi, Luca Rossi: PhD in Computer Science, University of Venice (December 2013)
- Reviewer and member of the final defense committee for the thesis of Marcos Ortega Hortas, "Automatic System for personal authentication using the retinal vessel tree as biometric pattern", Universidade da Coruna (Spain), Facultade de Informatica, Departamento de Computación. PhD supervisor: Manuel Fco. Gonzàlez Penedo (July 2009)
- Reviewer and member of the final defense committee for the thesis of Daniel Gonzàlez Jiménez, "Improvements in pose invariance and local description for Gabor-based 2D face recognition", Universidade de Vigo (Spain): Teoria do sinal e comunicacións. PhD supervisor: José Luis Alba Castro (May 2008)

6 Publications

6.1 Patents

1. M. Baltatu, R. D'Alessandro, R. D'Amico, M. Tistarelli, E. Grosso, M. Bicego: "Automatic biometric identification based on face recognition and support vector machines", European Patent EP1910977 (owner Telecom Italia S.p.A.), application EP20050775914 20050729 of 29/7/2005, (2007)

published also as: WO2007016936 (A1), US2009074259 (A1), US8275175 (B2), BRPI0520469 (A2)

6.2 Books / Chapters in books

5. P.M.Q. Aguiar, M. Bicego, U. Castellani, M.A.T. Figueiredo, A.T. Martins, V. Murino, A. Perina, and A. Ulas: "On the Combination of Information Theoretic Kernels with Generative Embeddings", chapter of the book *Similarity-Based Pattern Analysis and Recognition*, M. Pelillo Ed, Springer, (2013)

4. A. Ulas, U. Castellani, M. Bicego, V. Murino, M. Bellani, M. Tansella, P. Brambilla: "Analysis of Brain Magnetic Resonance (MR) Scans for the Diagnosis of Mental Illness", chapter of the book *Similarity-Based Pattern Analysis and Recognition*, M. Pelillo Ed, Springer, (2013)

3. M. Tistarelli, M. Bicego, J.L. Alba-Castro, D. Gonzalez-Jimenez, A.A. Salah, A. Mellakh, D. Petrovska-Delacretaz, B. Dorizzi: "2D face recognition", chapter of the book *Guide to Biometric Reference Systems and Performance Evaluation*, D. Petrovska-Delacretaz, G. Chollet and B. Dorizzi Eds, Springer, (2009)

2. R. Chellappa, M. Bicego, P. Turaga: "A review of video-based Face Recognition Algorithms", chapter of the book *Handbook of Remote Biometrics for Surveillance and Security*, M. Tistarelli, S.Z. Li, R. Chellappa Eds, Springer, (2009)

1. E. Grosso, M. Bicego: "Fondamenti di Informatica per l'Università" (in Italian), Giappichelli Editore, Torino, (2007)

6.3 Papers in International Journals

43. M. Bicego, E. Grosso: "On the importance of local and global analysis in the judgment of similarity and dissimilarity of faces", *Image and Vision Computing*, in press (2019)

42. A. Mensi, M. Bicego, P. Lovato, M. Loog, D.M.J. Tax: "A dissimilarity-based Multiple Instance Learning approach for Protein Remote Homology Detection", *Pattern Recognition Letters*, in press (2019)

41. M. Orozco-Alzate, J.M. Londono-Bonilla, V. Nale, M. Bicego: "Towards better volcanic risk-assessment systems by applying ensemble classification methods to triaxial seismic-volcanic signals", *Ecological Informatics*, vol. 51, pp. 177–184 (2019)

40. L. Bottarelli, M. Bicego, J. Blum, A. Farinelli: "Orienteering-based informative path planning for environmental monitoring", *Engineering Applications of Artificial Intelligence*, vol. 77, pp. 46–58 (2019)

39. M. Bicego, M.A.T. Figueiredo: "Clustering via binary embedding", *Pattern Recognition*, vol. 83, pp. 52-63, (2018)

38. L. Bottarelli, M. Bicego, M. Denitto, A. Di Pierro, A. Farinelli, R. Mengoni: "Biclustering with a quantum annealer", *Soft Computing*, vol. 22(18), pp. 52-63, (2018)

37. M. Bicego, A. Farinelli, E. Grosso, D. Paolini, S.D. Ramchurn: "On the distinctiveness of the electricity load profile", *Pattern Recognition*, vol. 74, pp. 317-325, (2018)

36. M. Denitto, M. Bicego, A. Farinelli, M.A.T. Figueiredo: "Spike and Slab Biclustering", *Pattern Recognition*, vol 72, pp. 186–195, (2017)

35. P. Lovato, M. Cristani, M. Bicego: "Soft Ngram representation and modeling for protein remote homology detection", *IEEE/ACM Transactions on Computational Biology and Bioinformatics*, vol. 14(6), pp. 1482-1488, (2017) (2017)

34. A. Farinelli, M. Bicego, F. Bistaffa, S.D. Ramchurn: "A hierarchical clustering approach to large-scale near-optimal coalition formation with quality guarantees", *Engineering Applications of Artificial Intelligence*, vol. 59, pp. 170-185, (2017)

33. M. Denitto, A. Farinelli, M.A.T. Figueiredo, M. Bicego: "A Biclustering Approach Based on Factor Graphs and The Max-Sum Algorithm", *Pattern Recognition*, vol. 62, 114-124, (2017)

32. M. Bicego, S. Baldo: "Properties of the Box-Cox Transformation for Pattern Classification", *Neurocomputing*, vol. 218, pp. 390-400, (2016), (2016)

31. P. Lovato, M. Bicego, M. Kesa, N. Jojic, V. Murino, A. Perina: "Traveling on discrete embeddings of gene expression", *Artificial Intelligence in Medicine*, vol. 70, pp. 1-11, (2016)

30. M. Bicego, P. Lovato: "A bioinformatics approach to 2D shape classification", *Computer Vision and Image Understanding*, vol. 145, pp. 59-69, (2016)

29. P. Lovato, A. Giorgetti, M. Bicego: "A multimodal approach for protein remote homology detection", *IEEE/ACM Transactions on Computational Biology and Bioinformatics*, accepted, vol. 12(5), pp. 1193-1198, (2015)

28. M. Orozco-Alzate, P.A. Castro-Cabrera, M. Bicego, J.M. Londono-Bonilla: "The DTW-based representation space for seismic pattern classification", *Computers and Geosciences*, special issue on *Statistical Learning in geoscience modelling: novel algorithms and challenging case studies*, accepted, (2015)

27. P. Lovato, M. Bicego, C. Segalin, A. Perina, N. Sebe, and M. Cristani. "Faved! biometrics: tell me which image you like and I'll tell you who you are", *IEEE Trans. on Information Forensics & Security*, vol. 9(3), pp. 364-374, (2014)

26. A. Carli, M.A.T. Figueiredo, M. Bicego, V. Murino: "Generative embeddings based on Rician mixtures for kernel-based classification of magnetic resonance images", *Neurocomputing*, vol. 123, pp. 49-59, (2014)

25. M. Bicego, C. Acosta-Munoz and M. Orozco-Alzate: "Classification of Seismic Volcanic Signals Using Hidden Markov Models-based Generative Embeddings", *IEEE Trans. on Geoscience and Remote Sensing*, 51(6-1): 3400–3409 (2013)

24. M. Bicego, A. Ulas, U. Castellani, A. Perina, V. Murino, A.F.T. Martins, P.M.Q. Aguiar, M.A.T. Figueiredo: "Combining Information Theoretic Kernels with Generative Embeddings for Classification", *Neurocomputing*, 101, pp. 161–169, (2013)

23. P. Bisignano, C. Lambruschini, M. Bicego, V. Murino, A. Favia, A. Cavalli, "In silico deconstruction of ATP-competitive inhibitors of glycogen synthase kinase-3β", *Journal of Chemical Information and Modeling*, vol. 52(12), pp. 3233-44, (2012)

22. M. Bicego, P. Lovato, A. Perina, M. Fasoli, M. Delledonne, M. Pezzotti, A. Polverari, V. Murino: "Investigating topic models' capabilities in expression microarray data classification", *IEEE/ACM Trans. on Computational Biology and Bioinformatics*, 9(6): 1831-1836 (2012)

21. M. Fasoli, S. Dal Santo, S. Zenoni, G.B. Tornielli, L. Farina, A. Zamboni, A. Porceddu, L. Venturini, M. Bicego, V. Murino, A. Ferrarini, M. Delledonne, M. Pezzotti: "The grapevine expression atlas reveals a deep transcriptome shift driving the entire plant into a maturation program", *Plant Cell*, 24, pp. 3489-3505, (2012)

20. B. Torre, M. Lorenzoni, M. Bicego, M. Cristani, V. Murino, A. Diaspro: "Principal Component Analysis In Dynamic Force Spectroscopy", *Imaging & Microscopy*, 13(4), pp. 26-28, (2011)

19. A. Ulas, R. Duin, U. Castellani, M. Loog, M. Bicego, V. Murino, M. Bellani, S. Cerruti, M. Tansella, P. Brambilla: "Dissimilarity-based Detection of Schizophrenia", *Int. J. of Imaging Systems and Technology*, vol. 21(2), pp. 179-192, (2011)

18. B. Torre, M. Bicego, M. Cristani, V. Murino, A. Diaspro, R. Cingolani: "Combination of atomic force microscopy and principal component analysis as a general method for direct recognition of functional and structural domains in nanonocomposite materials (p NA)", *Microscopy Research and Technique*, 73(10), pp. 973-981, (2010)

17. M. Bicego, E. Grosso, E. Otranto: "Analyzing the sign of financial local trends via Hidden Markov Models", *Medium for Econometric Applications*, 16(4), pp. 16-22, (2009)

16. M. Bicego, E. Pekaslka, D. Tax, R. Duin, "Component-based discriminative classification for hidden Markov models", *Pattern Recognition*, 42(11): 2637-2648, (2009)

15. G. Brelstaff, M. Bicego, N. Culeddu, M. Chessa: "Bag of Peaks: interpretation of NMR spectrometry", *Bioinformatics*, 25(2), pp. 258-264, (2009)

14. M. Bicego, M.A.T. Figueiredo: "Soft Clustering using Weighted One Class Support Vector Machines", *Pattern Recognition*, 42(1), pp. 27-32 , (2009)

13. M. Tistarelli, M. Bicego, E. Grosso: "Dynamic face recognition: from Human to Machine Vision", *Image and Vision Computing*, 27(3), pp. 222-232, (2009)

12. M. Bicego, E. Grosso, A. Lagorio, G. Brelstaff, L. Brodo, M. Tistarelli: "Distinctiveness of faces: a computational approach", *ACM Trans. on Applied Perception*, vol. 5(2), (2008)

11. M. Bicego, F. Dellaglio, G.E. Felis: "Multimodal Phylogeny for Taxonomy: integrating information from nucleotide and aminoacid sequences", *Journal of Bioinformatics and Computational Biology*, vol 5(5), pp. 1069-1085, (2007)

10. M. Cristani, M. Bicego, V. Murino: "Audio-Visual Event Recognition in Surveillance Video Sequences", *IEEE Trans. on Multimedia*, vol 9(2), pp. 257-267, (2007)

9. M. Bicego, V. Murino, M. Pelillo, A. Torsello: "Similarity-based Pattern Recognition", editorial message for the special issue on "Similarity-based Pattern Recognition", *Pattern Recognition*, vol 39(10), pp. 1813-1814, (2006)

8. M. Bicego, M. Cristani, V. Murino: "Unsupervised Scene Analysis: a Hidden Markov Model approach", *Computer Vision and Image Understanding*, vol 102, pp. 22-41, (2006)

7. M. Bicego, U. Castellani, V. Murino: "A Hidden Markov Model approach for appearance-based 3D object recognition", *Pattern Recognition Letters*, vol 26(16), pp. 2588-2599, (2005)

6. M. Bicego, M. Del Rosario Martinez, V. Murino: "A supervised data-driven approach for microarray spot quality classification". *Pattern Analysis and Applications*, vol 8, pp. 181–187, (2005)

5. M. Bicego: "Odor classification using similarity-based representation", *Sensors and Actuators B*, vol 110(2), pp. 225–230, (2005)

4. M. Bicego, V. Murino, M.A.T. Figueiredo: "Similarity-Based Classification of Sequences using hidden Markov models", *Pattern Recognition*, vol 37(12), pp. 2281-2291, (2004)

3. M. Bicego, V. Murino: "Investigating Hidden Markov Models' capabilities in 2D shape classification", *IEEE Trans. on Pattern Analysis and Machine Intelligence - PAMI*, vol 26(2), pp. 281–286, (2004)

2. M. Bicego, V. Murino, M.A.T. Figueiredo: "A sequential pruning strategy for the selection of the number of states in Hidden Markov Models". *Pattern Recognition Letters*, vol. 24(9–10), pp. 1395–1407, (2003)

1. M. Bicego, G. Tessari, G. Tecchiolli, M. Bettinelli: "A comparative analysis of basic Pattern Recognition techniques for the development of small size electronic nose". *Sensors and Actuators B*, vol. 85(1-2), pp. 137–144, (2002)

6.4 Papers in International Conference Proceedings / Edited Books

99. M. Bicego: "K-Random Forests: a K-means style algorithm for Random Forest clustering", *Proc. Int. Joint Conf. on Neural Networks (IJCNN2019)*, in press, (2019)

98. M. Orozco-Alzate, S. Baldo, M. Bicego: "Relation, Transition and Comparison between the Adaptive Nearest Neighbor Rule and the Hypersphere Classifier", *Proc. Int. Conf. on Image Analysis and Processing (ICIAP2019)*, in press, (2019)

97. A. Mensi, M. Bicego: "A Novel Anomaly Score for Isolation Forests", *Proc. Int. Conf. on Image Analysis and Processing (ICIAP2019)*, in press, (2019)

96. A. Castellini, F. Masillo, M. Bicego, D. Bloisi, J.J. Blum, A. Farinelli, S. Peigner: "Subspace clustering for situation assessment in aquatic drones", *Proc. ACM Symposium on Applied Computing (SAC2019)*, pp. 930-937, (2019)

95. A. Mensi, M. Bicego, P. Lovato, M. Loog, D.M.J. Tax: "Protein Remote Homology Detection Using Dissimilarity-Based Multiple Instance Learning". *Proc. Int. Workshop on Statistical Techniques in Pattern Recognition (S+SSPR2018)*, Lecture Notes in Computer Science n. 11004, pp. 119–129, (2018)

94. M. Bicego, P. Lovato, M. De Bona, F. Guzzo, M. Assfalg: "Mining NMR spectroscopy using Topic Models", *Proc. Int. Conf. on Pattern Recognition (ICPR2018)*, pp. 3784–3789, (2018)

93. A. Castellini, G.A. Beltrame, M. Bicego, J.J. Blum, M. Denitto, A. Farinelli: "Unsupervised Activity Recognition for Autonomous Water Drones", Proc. ACM Symposium on Applied Computing – Track on Intelligent Robotics and Multi-Agent Systems (SAC-IRMAS2018), pp. 840-842, (2018)

92. A. Castellini, G.A. Beltrame, M. Bicego, D. Bloisi, J.J. Blum, M. Denitto, A. Farinelli: "Activity Recognition for Autonomous Water Drones based on Unsupervised Learning Methods", Proc. AIRO@AI*IA, pp. 16-21, (2017)

91. M. Denitto, M. Bicego, A. Farinelli, M. Pelillo: "Dominant Set Biclustering", Proc. Int. Workshop on Energy Minimization Methods in Computer Vision and Pattern Recognition (EMMCVPR2017), accepted, (2017)

90. M. Denitto, S. Melzi, M. Bicego, U. Castellani, A. Farinelli, M.A.T. Figueiredo, Y. Kleiman, M. Ovsjanikov: "Region-based Correspondence Between 3D Shapes via Spatially Smooth Biclustering", Proc. Int. Conf. on Computer Vision (ICCV2017), pp. 4270-4279, (2017)

89. M. Denitto, A. Farinelli, M. Bicego: "Biclustering of Time Series Data using Factor Graphs", Proc. ACM Symposium on Applied Computing – Track on - Computational Biology and Bioinformatics (SAC-BIO2017), pp. 28-30, (2017)

88. L. Bottarelli, J. Blum, M. Bicego, A. Farinelli: "Path Efficient Level Set Estimation for Mobile Sensors", Proc. ACM Symposium on Applied Computing – Track on Intelligent Robotics and Multi-Agent Systems (SAC-IRMAS2017), pp. 262-267, (2017)

87. L. Bottarelli, M. Bicego, J. Blum, N. Bombieri, A. Farinelli, L. Veggian: "Orienteering-based Path Selection for Mobile Sensors". Proc. AIRO@AI*IA, pp. 36-40, (2016)

86. A. Cucci, P. Lovato, M. Bicego: "Enriched Bag of Words for Protein Remote Homology Detection", Proc. Int. Workshop on Statistical Techniques in Pattern Recognition (S+SSPR2016), Lecture Notes in Computer Science n. 10029, pp. 463-473, (2016)

85. M. Orozco-Alzate, R.P.W. Duin, M. Bicego: "Unsupervised Parameter Estimation of Non Linear Scaling for Improved Classification in the Dissimilarity Space", Proc. Int. Workshop on Statistical Techniques in Pattern Recognition (S+SSPR2016), Lecture Notes in Computer Science n. 10029, pp. 74-83, (2016)

84. M. Denitto, L. Magri, A. Farinelli, A. Fusiello, M. Bicego: "Multiple Structure Recovery via Probabilistic Biclustering", Proc. Int. Workshop on Statistical Techniques in Pattern Recognition (S+SSPR2016), Lecture Notes in Computer Science n. 10029, pp. 274-284, (2016)

83. L. Bottarelli, M. Bicego, M. Denitto, A. Di Pierro, A. Farinelli: "A Quantum Annealing Approach to Biclustering", Proc. Int. Conf. on the Theory and Practice of Natural Computing (TPNC 2016), Lecture Notes in Computer Science n. 10071, pp. 175-187, (2016),

82. M. Bicego, M. Loog: "Weighted K-Nearest Neighbor Revisited", Proc. Int. Conf. on Pattern Recognition (ICPR2016), (2016)

81. L. Bottarelli, M. Bicego, J. Blum, A. Farinelli: "Skeleton-Based Orienteering for Level Set Estimation", Proc. European Conf. on Artificial Intelligence (ECAI2016), pp. 1256-1264, (2016)

80. P. Lovato, M. Bicego, V. Murino, A. Perina: "Robust initialization for learning Latent Dirichlet Allocation", Proc. Int. Workshop on Similarity-Based Pattern Analysis and Recognition (SIMBAD2015), pp. 117-132, (2015)

79. M. Bicego, J.M. Londono-Bonilla, M. Orozco-Alzate: "Volcano-seismic events classification using document classification strategies", Proc. of Int. Conf. on Image Analysis and Processing (ICIAP2015), vol. 1, pp. 119-129, (2015)

78. M. Denitto, A. Farinelli, M. Bicego: "Biclustering Gene Expressions Using Factor Graphs and The Max-Sum Algorithm", Proc. Int. Joint Conf. on Artificial Intelligence (IJCAI2015), pp. 925-931, (2015)

77. M. Bicego, S. Danese, S. Melzi, U. Castellani: "A bioinformatics approach to 3D shape matching", *Proc. of ECCV2014 Workshop on Non-Rigid Shape Analysis and Deformable Image Alignment (NORDIA2014)*, pp. 313-325, (2014)

76. P.A. Castro-Cabrera, M. Orozco-Alzate, A. Adami, M. Bicego, J.M. Londono-Bonilla, G. Castellanos-DomÃnguez: "A Comparison Between Time-frequency and Cepstral Feature Representations for Seismic-volcanic Pattern Classification", *Proc. of. 19th Iberoamerican Congress on Pattern Recognition (CIARP2014)*, pp. 440-447, (2014)

75. R.P.W. Duin, M. Bicego, M. Orozco-Alzate, S.-W. Kim, M. Loog: "Metric learning in dissimilarity space for improved nearest neighbor performance", *Proc. Int. Workshop on Statistical Techniques in Pattern Recognition (S+SSPR2014)*, pp. 183-192, (2014)

74. M. Denitto, A. Farinelli, G. Franco, and M. Bicego: "A binary Factor Graph model for biclustering", *Proc. Int. Workshop on Statistical Techniques in Pattern Recognition (S+SSPR2014)*, pp. 183-192, (2014)

73. M. Bicego, F. Recchia, A. Farinelli S. D. Ramchurn E. Grosso: "Behavioural biometrics using electricity load profiles", *Int. Conf. on Pattern Recognition (ICPR2014)*, pp. 1764-1769, (2014)

72. P. Lovato, A. Milanese, C. Centomo, A. Giorgetti, M. Bicego: "S-BLOSUM: classification of 2D shapes with biological sequence alignment", *Int. Conf. on Pattern Recognition (ICPR2014)*, pp. 2335-2340, (2014)

71. A. Perina, M. Kesa, M. Bicego: "Expression Microarray data classification using Counting Grids and Fisher Kernel", *Int. Conf. on Pattern Recognition (ICPR2014)*, pp. 1770-1775, (2014)

70. A. Perina, N. Jojic, M. Bicego, A. Truski: "Documents as multiple overlapping windows into grids of counts", *Proc. Advances in Neural Information Processing Systems (NIPS2013)*, vol. 26, pp. 10-18,(2013)

69. A. Farinelli, M. Bicego, S. Ramchurn, M. Zucchelli, "C-Link: a hierarchical clustering approach to large-scale near-optimal coalition formation", *Proc. Int. Joint Conf. on Artificial Intelligence (IJCAI2013)*, pp. 106-112, (2013)

68. A. Perina, M. Bicego, U. Castellani, V. Murino, "Exploiting geometry in counting grids", *Proc. Int. Workshop on Similarity-based Pattern Analysis and Recognition (SIMBAD2013)*, pp. 250-264, (2013)

67. P. Lovato, A. Perina, N. Sebe, O. Zandonà, A. Montagnini, M. Bicego, M. Cristani, "Tell Me What You Like and I'll Tell You What You Are: Discriminating Visual Preferences on Flickr Data", *Proc of 11th Asian Conference on Computer Vision (ACCV2012)*, vol. 1, pp. 45–56, (2012)

66. P. Lovato, M. Bicego: "2D shapes classification using BLAST", *Proc. Int. Workshop on Statistical Techniques in Pattern Recognition (SPR2012)*, pp. 273-281, (2012)

65. P. Lovato, M. Bicego, M. Cristani, N. Jojic, A. Perina: "Feature selection using Counting Grids: application to microarray data", *Proc. Int. Workshop on Statistical Techniques in Pattern Recognition (SPR2012)*, pp. 629-637, (2012)

64. M. Bicego, P. Lovato: "2D shape recognition using biological sequence alignment tools", *Proc. Int. Conf. on Pattern Recognition (ICPR2012)*, pp. 1359-1362, (2012)

63. R. Avesani, A. Azzoni, M. Bicego, M. Orozco-Alzate: "Automatic Classification of Volcanic Earthquakes in HMM-induced Vector Spaces", *Proc. of. 17th Iberoamerican Congress on Pattern Recognition (CIARP2012)*, pp. 640-647, (2012)

62. A. Carli, M. Figueiredo, M. Bicego, V. Murino, "Generative Embeddings Based on Rician Mixtures: Application to Kernel-Based Discriminative Classification of Magnetic Resonance Images", *Proc. of 1st Int. Conf. on Pattern Recognition Applications and Methods (ICPRAM2012)*, pp. 113-122, (2012) **(best student paper award)**

61. B. Torre, M. Bicego, M. Cristani, V. Murino, A. Diaspro, R. Cingolani: "Principal Component Analysis in Dynamic Force Spectroscopy: an easy method to extract compositional information in textured sample", *3rd Multifrequency AFM Conference*, (2011)

60. M. Bicego, A. Ulas, P. Schuffler, U. Castellani, V. Murino, A. Martins, P. Aguiar, M. Figueiredo: "Renal Cancer Cell Classification Using Generative Embeddings and Information Theoretic Kernels", *Proc. of Int. Conf. on Pattern Recognition in Bioinformatics (PRIB2011)*, (2011)

59. A. Perina, P. Lovato, M. Cristani, M. Bicego: "A comparison on score spaces for expression microarray data classification", *Proc. of Int. Conf. on Pattern Recognition in Bioinformatics (PRIB2011)*, (2011)

58. A. Farinelli, M. Denitto, M. Bicego: "Biclustering of expression microarray data using Affinity Propagation", *Proc. of Int. Conf. on Pattern Recognition in Bioinformatics (PRIB2011)*, (2011)

57. A. Ulas, U. Castellani, P. Mirtuono, M. Bicego, V. Murino, S. Cerruti, M. Bellani, M. Atzori, G. Rambaldelli, M. Tansella, P. Brambilla: "Multimodal Schizophrenia Detection by Multiclassification Analysis", *Proc. of. 16th Iberoamerican Congress on Pattern Recognition (CIARP2011)*, (2011)

56. A. Ulas, P. Schuffler, M. Bicego, U. Castellani, V. Murino: "Hybrid Generative-Discriminative Nucleus Classification of Renal Cell Carcinoma", *Proc. of Int. Workshop on Similarity-based Pattern Recognition (SIMBAD2011)* , pp. 77-89, (2011)

55. M. Bicego, A. D. Favia, P. Bisignano, A. Cavalli, V. Murino: "An innovative protocol for comparing protein binding sites via atomic grid maps", *Proc. of Int. Conf. on Knowledge Discovery and Information Retrieval (KDIR2011)*, (2011)

54. F. Smeraldi, M. Bicego, M. Cristani, V. Murino: "CLOOSTING: CLustering Data with bOOSTING", *Proc. Int. Workshop on Multiple Classifier Systems (MCS2011)*, pp. 289-298, (2011)

53. A. Perina, P. Lovato, V. Murino, M. Bicego: "Biologically-aware Latent Dirichlet Allocation (BaLDA) for the Classification of Expression Microarray", *Proc. Int. Conf. on Pattern Recognition in Bioinformatics (PRIB2010)*, pp. 230-241, (2010)

52. M. Bicego, A. Perina, V. Murino, A. Martins, P. Aguiar, M. Figueiredo, "Combining Free Energy Score Spaces with Information Theoretic Kernels: application to scene classification, *Proc. Int. Conf. on Image Processing (ICIP2010)*, (2010)

51. A. Ulaş, R.P.W. Duin, U. Castellani, M. Loog, M. Bicego, V. Murino, M. Bellani, S. Cerruti, M. Tansella, P. Brambilla, "Dissimilarity-based Detection of Schizophrenia, *Proc. of ICPR workshop on Brain Decoding: Pattern Recognition Challenges in FMRI Neuroimaging*, (2010)

50. A. Martins, M. Bicego, V. Murino, P. Aguiar, M. Figueiredo, "Information theoretical kernels for generative embeddings based on Hidden Markov Models", *Proc. of Int. Work. on Structural and Syntactic Pattern Recognition and Statistical Techniques in Pattern Recognition (S+SSPR2010)*, (2010)

49. M. Bicego, A. Martins, V. Murino, P. Aguiar, M. Figueiredo, "2D shape recognition using information theoretic kernels", *Proc. of Int. Conf. on Pattern Recognition (ICPR2010)*, (2010)

48. M. Bicego, P. Lovato, A. Ferrarini, M. Delledonne, "Biclustering of expression microarray data with topic models", *Proc. of Int. Conf. on Pattern Recognition (ICPR2010)*, (2010)

47. A. Carli, M. Bicego, S. Baldo, V. Murino, "Nonlinear mappings for generative kernels on latent variable models", *Proc. on Int. Conf. of Pattern Recognition (ICPR2010)*, (2010)

46. A. Carli, U. Castellani, M. Bicego, V. Murino, "Dissimilarity-based Representation for Local Parts", *Proc. of Workshop on Cognitive Information Processing (CIP2010)*, (2010)

45. M. Bicego, P. Lovato, B. Oliboni, "Expression microarray classification using topic models", *Proc. of ACM SAC - Bioinformatics and Computational Biology track (SAC-BIO2010)*, (2010)

44. A. Carli, M. Bicego, S. Baldo, V. Murino, "Non-linear Generative embeddings for kernels on latent variable models", *Proc. of ICCV09 Workshop on Subspace Methods (SUBSPACE2009)*, (2009)

43. M. Bicego, M. Cristani, V. Murino, E. Pekalska, R. Duin, "Clustering-based construction of Hidden Markov Models for generative kernels", *Proc. of Int. Conf. on Energy Minimization Methods in Computer Vision and Pattern Recognition (EMMCVPR2009)*, pp. 466-479, (2009)

42. D. S. Cheng, M. Bicego, U. Castellani, S. Cerruti, M. Bellini, G. Rambaldelli, M. Aztori, P. Brambilla, V. Murino, "Schizophrenia Classification Using Regions of Interest in Brain MRI", *Proc. Intelligent Data Analysis in Biomedicine and Pharmacology (IDAMAP2009), in conjunction with AIME09*, (2009)

41. L. Bazzani, M. Cristani, M. Bicego, V. Murino, "Subjective online feature selection for occlusion management in tracking applications", *Proc. Int. Conf. on Image Processing (ICIP2009)*, (2009)

40. D. S. Cheng, M. Bicego, U. Castellani, M. Cristani, S. Cerruti, M. Bellani, G. Rambaldelli, M. Aztori, P. Brambilla, V. Murino, "A Hybrid Generative/Discriminative Method for Classification of Regions of Interest in Schizophrenia Brain MRI", *Proc. of MICCAI09 workshop on Probabilistic Models for Medical Image Analysis*, (2009)

39. M. Ortega Hortas, L. Brodo, M. Bicego, M. Tistarelli, "Measuring Changes in Face Appearance through Aging", *Proc. of CVPR09 Workshop on Biometrics*, pp.107-113, (2009)

38. M. Ortega Hortas, L. Brodo, M. Bicego, M. Tistarelli, "On the quantitative estimation of short-term aging in human faces", *Proc. Int. Conf. on Image Analysis and Processing (ICIAP2009)*, pp. 575-584, (2009)

37. M. Cadoni, M. Bicego, E. Grosso, "3D face recognition using joint differential invariants", *Proc. Int. Conf. on Biometrics (ICB2009)*, pp. 279-288, (2009)

36. M. Bicego, E. Grosso, E. Otranto, "A Hidden Markov Model approach to classify the sign of financial local trends", *Proc. IAPR Int. Workshop on Statistical Techniques in Pattern Recognition (SPR2008)*, pp. 852-861, (2008)

35. M. Bicego, A. Trudda, "2D shape classification using multifractional Brownian motion", *Proc. IAPR Int. Workshop on Statistical Techniques in Pattern Recognition (SPR2008)*, pp. 906-916, (2008)

34. M. Bicego, D. Gonzalez-Jimenez, E. Grosso, J. Alba-Castro: "Generalized Gaussian Distributions for Sequential Data Classification", *Proc. of IEEE Int. Conf. on Pattern Recognition*, pp. 1-4, (2008)

33. M. Bicego, M. Cristani, V. Murino, "Sparseness Achievement in Hidden Markov Models", *Proc. Of IEEE Int. Conf. on Image Analysis and Processing (ICIAP 2007)*, pp. 67-72, (2007) **(best poster presentation award)**

32. M. Bicego, A.A. Salah, E. Grosso, M. Tistarelli, L. Akarun: "Generalization in Holistic versus Analytic Processing of Faces", *Proc. Of IEEE Int. Conf. on Image Analysis and Processing (ICIAP 2007)*, pp. 235-240, (2007)

31. A. Rattani, D.R. Kisku, M. Bicego, M. Tistarelli: "Feature Level Fusion of Face and Fingerprint Biometrics", *Proc. of IEEE Int. Conf. on Biometrics: Theory, Applications and Systems (BTAS 2007)*, pp. 1-6, (2007)

30. M. Tistarelli, L. Brodo, A. Lagorio, M. Bicego: "Recognition of human faces: from biological to artificial vision", *Brain, Vision and Artificial Intelligence 2007 (BVAI07)*, LNCS 4729, F. Mele, G. Ramella, S. Santillo and F. Ventriglia Eds, pp. 191-213, (2007)

29. D. Gonzalez-Jimenez, M. Bicego, J.W.H. Tangelder, B.A.M Schouten, O. Ambekar, J.L. Alba-Castro, E. Grosso, M. Tistarelli: "Distance Measures for Gabor Jets-based Face Authentication: A Comparative Evaluation", *Advances in Biometrics (ICB07)*, LNCS 4642, Seong-Whan Lee and Stan Z. Li Eds., pp. 474-483, (2007)

28. M. Bicego, E. Pekalska and R.P.W. Duin: "Group-induced vector spaces", *Multiple Classifier Systems (MCS07)*, LNCS 4472, M. Haindl, J. Kittler, and F. Roli Eds., pp. 190-199, (2007)

27. A. A. Salah, M. Bicego, L. Akarun, E. Grosso, M. Tistarelli: "Hidden Markov model-based face recognition using selective attention", *Human Vision and Electronic Imaging XII*, Proc. of SPIE, vol. 6492, (2007)

26. A. Rattani, D.R. Kisku, M. Bicego, M. Tistarelli: "Robust Feature-Level Multibiometric Classification", *Proc. of IEEE Biometrics Symposium (BSYM06)*, pp. 1-6, (2006)

25. M. Tistarelli, M. Bicego, E. Grosso: "Recognizing people's faces: from Human to Machine vision", *Proc. of IEEE Int. Conf. on Control, Automation, Robotics and Vision (ICARCV06)*, pp. 1-7, (2006)

24. M. Bicego, A.Lagorio, E. Grosso, M. Tistarelli: "On the use of SIFT features for face authentication", *Proc. of Int. CVPR 2006 Workshop on Biometrics*, pp. 35, (2006)

23. M. Cristani, M. Bicego, V. Murino: "Audio-visual foreground extraction for events characterization", *Proc. of Int. CVPR 2006 Workshop on Semantic Learning Applications in Multimedia*, pp. 116, (2006)

22. L. Brodo, M. Bicego, G. Brelstaff, A. Lagorio, M. Tistarelli, E. Grosso: "Comparing Faces: a computational and perceptual study". *Proc. of Int. Conf. on Computer Vision Theory and Application (VISAPP06)*, pp. 188-191, (2006)

21. M. Bicego, E. Grosso, M. Tistarelli: "Person Authentication from video of faces: a behavioral and physiological approach using Pseudo Hierarchical Hidden Markov Models", *Int. Conf. On Biometrics (ICB06)*, LNCS 3832, D. Zhang, A.K. Jain Eds, pp 113-120, (2006).

20. U. Castellani, M. Bicego, G. Iacono, V. Murino: "3D Face Recognition Using Stereoscopic Vision", *Advanced Studies in Biometrics*, LNCS 3161, M. Tistarelli, J. Bigun Eds, p. 126, (2005)

19. M. Bicego, E. Grosso, M. Tistarelli: "Probabilistic face authentication using Hidden Markov Models", *Biometric Technology for Human Identification II*, Proc. of SPIE, vol. 5779, A.K. Jain, N.K. Ratha Eds., pp. 299–306, (2005).

18. M. Bicego, E. Grosso, M. Tistarelli: "Face Authentication Using One-Class Support Vector Machines", *Advances in Biometric Person Authentication: International Workshop on Biometric Recognition Systems*, in congiunzione con *Int. Conf. on Computer Vision*, LNCS 3781, S.Z. Li, Z. Sun, T. Tan, S. Pankanti, G. Chollet, D. Zhang Eds., pp. 15, (2005)

17. S. Ceresola, A. Fusiello, M. Bicego, A. Belussi, V. Murino: "Automatic updating of urban vector maps", *Image Analysis and Processing*, LNCS 3617, F. Roli, S. Vitulano Eds., pp. 1133–1139, (2005)

16. M. Bicego, E. Grosso, M. Tistarelli: "On finding differences between faces", *Audio- and Video-based Biometric Person Authentication*, LNCS 3546, T. Kanade, A. Jain, and N.K. Ratha Eds., pp. 329–338, (2005).

15. V. Murino, M. Bicego, I. Rossi: "Statistical classification of raw textile defects". *Proc. of IEEE Int. Conf. on Pattern Recognition (ICPR04)*, vol 4, pp. 311–314, (2004)

14. M. Cristani, M. Bicego, V. Murino: "On-line adaptive background modelling for audio surveillance". *Proc. of IEEE Int. Conf. on Pattern Recognition (ICPR04)*, vol 2, pp. 399–402, (2004)

13. A. Castellani, D. Botturi, M. Bicego, P. Fiorini: "Hybrid HMM/SVM Model for the Analysis and Segmentation of Teleoperation Tasks". *Proc. of IEEE Int. Conf. on Robotics and Automation (ICRA04)*, pp. 2918–2923, (2004)

12. M. Cristani, M. Bicego, V. Murino: "Audio-video integration for background modelling", *European Conference on Computer Vision*, LNCS 3022, T. Pajdla, J. Matas Eds., pp. 202–213, (2004)

11. M. Bicego, G. Iacono, V. Murino: "Face recognition with Multilevel B-Splines and Support Vector Machines", *Proc. of ACM SIGMM Multimedia Biometrics Methods and Applications Workshop (WBMA03)*, in congiunzione con *11-th ACM Int. Conf. on Multimedia*, pp. 17–24, (2003)

10. M. Cristani, M. Bicego, V. Murino: "Multi-level Background Initialization using Hidden Markov Models", *Proc. of ACM SIGMM Workshop on Video Surveillance (IWVS03)*, in congiunzione con *11-th ACM Int. Conf. on Multimedia*, pp. 11–20, (2003)

9. M. Bicego, U. Castellani, V. Murino: "Using Hidden Markov Models and Wavelets for face recognition", *Proc. of IEEE Int. Conf. on Image Analysis and Processing (ICIAP03)*, pp. 52–56, (2003)

8. M. Bicego, S. Dalfini, G. Vernazza, V. Murino: "Automatic road extraction from aerial images by probabilistic contour tracking", *Proc. of IEEE Int. Conf. on Image Processing (ICIP03)* , vol. III, pp. 585–588, (2003)

7. M. Bicego, S. Dalfini, V. Murino: "Extraction of geographical entities from aerial images". *Proc. of Joint Workshop on Remote Sensing and Data fusion over Urban Areas (URBAN03*), pp. 125–128, (2003)

6. M. Bicego, V. Murino, M.A.T. Figueiredo: "Similarity-Based Clustering of Sequences using Hidden Markov Models", *Machine Learning and Data Mining*, LNAI 2734, P. Perner, A. Rosenfeld Eds., Springer, pp. 86–95, (2003)

5. M. Bicego, M. Cristani, A. Fusiello, V. Murino: "Watershed-based unsupervised clustering", *Energy Minimization Methods in Computer Vision and Pattern Recognition*, LNCS 2683, A. Rangarajan, M.A.T. Figueiredo, J. Zerubia Eds., Springer, pp. 83–94, (2003)

4. M. Cristani, M. Bicego, V. Murino: "Integrated Region- and Pixel-based Approach to Background Modelling". *Proc. of IEEE Workshop on Motion and Video Computing (MOTION02)*, pp. 3–8, (2002)

3. A. Panuccio, M. Bicego, V. Murino: "A Hidden Markov Model-based approach to sequential data clustering". *Structural, Syntactic and Statistical Pattern Recognition*, LNCS 2396, T. Caelli, A. Amin, R.P.W. Duin, M. Kamel, D. de Ridder Eds., Springer, pp. 734–742, (2002)

2. M. Bicego, V. Murino: "2D shape recognition by Hidden Markov Models". *Proc. of 11th IEEE Int. Conf. on Image Analysis and Processing (ICIAP01)*, pp. 20–24, (2001)

1. M. Bicego, A. Dovier, V. Murino: "Designing the Minimal Structure of Hidden Markov Models by Bisimulation". *Energy Minimization Methods in Computer Vision and Pattern Recognition*, LNCS 2134, M.A.T. Figueiredo, J. Zerubia, A.K. Jain Eds., Springer, pp. 75–90, (2001)

6.5 Technical Reports / Posters / Others

8. M. Bicego, L. Bottarelli, M. Denitto, A. Dipierro, A. Farinelli: "Biclustering and Quantum Annealing", contributed talk at the Int. Conf. on Quantum Information Processing and Communication (QPIC2015), (2015)

7. P. Lovato, A. Giorgetti, M. Bicego: "A multimodal approach to protein remote homology detection", poster at the *European Conference on Computational Biology (ECCB14)*, (2014)

6. A. Castellini, V. Manca, M. Bicego, S. Compri, V. Marino, G. Tosadori: "Genome classification by dictionary-based indexes", poster at the *Int. Conf. on Pattern Recognition in Bioinformatics (PRIB2011)*, (2011)

5. M. Bicego, E. Grosso, E. Otranto: "Recognizing and forecasting the sign of financial local trends using Hidden Markov Models", *CRENoS working paper n. 2008-03*, (2008)

4. M. Bicego, G. Brelstaff, N. Culeddu, M. Chessa: "Bag of Peaks: Interpretation of NMR Spectroscopy", poster at the *7th European Conference on Computational Biology*, (2008)

3. G.J. Brelstaff, L. Brodo, M. Bicego, E. Grosso: "Face-pair scrutiny - subject-type classification", poster at the *European Conference on Visual Perception (ECVP2006)* , pubblished in *Perception – ECVP Abstract Supplement*, vol 35 sup, p. 209, (2006)

2. D. Porcheddu, G. Atzeni, M. Bicego: "Ordinamenti dimensionali di impresa attraverso metodologie multiple classifier systems (MCS)", *Economia e politica industriale*, (2007) (in Italian)

1. M. Bicego, S. Dalfini, V. Murino: "Aerial images analysis for the extraction of geographical entities". *Proc. of Workshop on Spatial Data and Geographic Information Systems (SpaDaGIS 03)*, (2003)

Verona, October 2019