



Europass Curriculum Vitae

Personal information

First name(s) / Surname(s) **Francesca Bovolo**

Telephone(s)

E-mail

Nationality

Date of birth

Gender

Work experience

Dates July, 1st 2013 – now

Occupation or position held Unit Head at of Remote Sensing for Digital Earth unit

Main activities and responsibilities Research, unit management, coordination, project management, supervision of unit members

Name and address of employer Fondazione Bruno Kessler

Type of business or sector Research

Dates April 2012 - June 2013

Occupation or position held Research fellow (assegnista di ricerca)

Main activities and responsibilities Research, project management, students supervision

Name and address of employer University of Trento - Department of Information Engineering and Computer Science

Type of business or sector Research

Dates April 2009 - April 2012

Occupation or position held Post-doctoral fellowship

Main activities and responsibilities Research, project management, students supervision

Name and address of employer University of Trento - Department of Information Engineering and Computer Science

Type of business or sector Research

Dates April 2007 - March 2009

Occupation or position held Post-doctoral fellowship

Main activities and responsibilities Research, project management, students supervision

Name and address of employer University of Trento - Department of Information Engineering and Computer Science

Type of business or sector Research

Education and training

Dates 2003-2006

Title of qualification awarded Ph.D. in Information and Communication Technology, Information and Communication Technology

Principal subjects/occupational skills covered Remote sensing image processing and information extraction, pattern recognition, multitemporal data processing, optical passive and SAR active image processing / research skills, project and people management

Name and type of organisation providing education and training University of Trento, Trento, Italy

Dates 2001-2003

Title of qualification awarded Master degree in Communication Engineering
Principal subjects/occupational skills covered Remote Sensing / Advanced skills in information and communication technologies
Name and type of organisation providing education and training University of Trento, Trento, Italy
Dates 1998 - 2001
Title of qualification awarded Bachelor degree in Communication Engineering
Principal subjects/occupational skills covered Remote Sensing /Basics in information and communication technologies
Name and type of organisation providing education and training University of Trento, Trento, Italy
Dates July 1998
Title of qualification awarded School leaving certificate
Name and type of organisation providing education and training Liceo Scientifico "G. Galilei", Trento, Italy

Personal skills and competences

Mother tongue(s) Italian

Other language(s)

Self-assessment

European level (*)

English

German

Understanding		Speaking		Writing	
Listening	Reading	Spoken interaction	Spoken production		
B2	C1	C1	B2	B2	
B1	B1	B1	B1	A2	

(*) [Common European Framework of Reference for Languages](#)

Awards

- Winner (first place) of the Student Prize Paper Competition of the 2006 *IEEE International Geoscience and Remote Sensing Symposium (IGARSS'06)* (Denver, USA, 2006).
- Recipient of *IEEE Transactions on Geoscience and Remote Sensing Best Reviewers* in 2011.
- Nominated IEEE Senior member in April 2013.
- Co-supervisor of the Master Thesis "A novel multilevel technique robust to registration noise for change detection in very high resolution remote sensing images" by Silvia Marchesi, which won (first place) the Eugenio Zilioli Prize for the best Italian Master Thesis on Remote Sensing in 2007. Supervisor prof. Lorenzo Bruzzone.
- Co-supervisor of the Master Thesis "A novel method for change detection in very high geometrical resolution images based on multilevel parcels and hierarchical MRF" by Wael Abdel Jaber, which won the IEEE-GRS South Italy Chapter Prize for the best Italian Master Thesis on Remote Sensing in 2009. Supervisor prof. Lorenzo Bruzzone.
- Co-supervisor of the Master Thesis "A Multilevel Approach to Change Detection for Hot Spot Surveillance with Very High Resolution SAR Images" by Carlo Marin, which won the IEEE-GRS South Italy Chapter Prize for the best Italian Master Thesis on Remote Sensing in 2011. Supervisor prof. Lorenzo Bruzzone.
- Co-supervisor of the Master Thesis "Active Learning in One-class classification using SVDD" by Mirco Furlani, which won (first place) the Eugenio Zilioli Prize for the best Italian Master Thesis on Remote Sensing in 2011. Supervisor prof. Lorenzo Bruzzone.

Research Interests

- Remote sensing.
- Image and signal processing.
- Analysis of multitemporal images and time series.
- Change detection.
- Machine learning.
- Pattern recognition.
- SAR images.
- Passive multispectral and hyperspectral images.
- LiDAR.

International Assignments

- Associate Editor of the SPIE Journal of Applied Remote Sensing (since September 2015).
- Evaluator of personal research funding applications submitted to Estonian Research Council (ETAg), 2013.
- Opponent at the licentiate thesis defense on "Multitemporal Remote Sensing for Urban Mapping using KTH-SEG and KTH-Pavia Urban Extractor" by Alexander Jacob, KTH, Stockholm, Sweden, 2014.
- Associate Editor of the IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (January 2014 – December 2016).
- Guest Editor of the Special Issue on "Analysis of Multitemporal Remote Sensing Data" of the IEEE Transaction on Geoscience and Remote Sensing (published April 2013).
- Member of the Board of reviewers for Ph.D. Dissertation "Multi-resolution Spatial Unmixing for MERIS and Landsat Image Fusion", by Julia Amorós López, University of Valencia, Spain, 2012.
- Associate Editor of the IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (January 2011 – December 2013).
- Invited as external expert member of the committee for Master thesis dissertation, University of Lausanne, Switzerland, 2009.
- Member of the Board of reviewers for Ph.D. Dissertation "Cloud screening algorithm for MERIS and CHRIS multispectral sensors", by Luis Gómez Chova, University of Valencia, Spain, 2007.

Invited talks

- Invited lecture on "Unsupervised change detection in multitemporal remote sensing images acquired by medium and very high resolution multispectral sensors" (University of Valencia, Spain) (September 2007).
- Invited lecture on "Change Detection in Multitemporal Very High Resolution Images" at the International Ph.D. Summer School on "Very High Resolution Remote Sensing", Grenoble, France, September 8-12, 2008.
- Invited tutorial on "Methods in Remote Sensing Digital Image Processing and Classification" (part related to Change Detection in SAR Images) within the XIV SBSR Brazilian Remote Sensing Symposium, Natal-RN, Brazil, April 25-30, 2009.
- Invited lecture on "EO data fusion for risk management" at the IEEE Geoscience and Remote Sensing Society 2015 Summer School (GR4S), on the occasion of the IEEE International Geoscience and Remote Sensing Symposium 2015 (IGARSS 2015), Milan, Italy, 23-24 July 2015.

Scientific reviewer

- IEEE Transaction on Geoscience and Remote Sensing;
- IEEE Geoscience and Remote Sensing Letters;
- IEEE Transactions on Image Processing;
- IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing;
- IEEE Transactions on Aerospace and Electronic Systems;
- International Journal of Remote Sensing;
- Remote Sensing Letters;
- Pattern Recognition;
- Pattern Recognition Letters;
- Remote Sensing of Environment;
- Photogrammetric Engineering and Remote Sensing;
- Photogrammetry and Remote Sensing;
- Remote Sensing;
- Journal of Information Fusion;
- Sensors;
- Philosophical Transactions of the Royal Society B: Biological Sciences.

Main roles in conferences and workshops

- Technical Chair of the IEEE Sixth International Workshop on the Analysis of Multi-Temporal Remote Sensing Images (MultiTemp 2011), Trento, Italy, July 2011.
- Publication Chair of the IEEE Sixth International Workshop on the Analysis of Multi-Temporal Remote Sensing Images (MultiTemp 2011), Trento, Italy, July 2011.
- Co-chair of the Conference on Image and Signal Processing for Remote Sensing XX, SPIE 21th International Symposium on Remote Sensing, Amsterdam, Netherlands, September 2014.
- Special Session Co-organizer in the 1st Big data in Image Time Series from space, ESA-ESRIN, Frascati, Rome, November 2014. Special session on "Big data in image time series from space".
- Co-chair of the Conference on Image and Signal Processing for Remote Sensing XXI, SPIE 22th International Symposium on Remote Sensing, Toulouse, France, September 2015.
- Publication Chair of the IEEE International Geoscience and Remote Sensing Symposium 2015 (IGARSS 2015), Milan, Italy, July 2015.
- Technical Program Committee (TPC) Theme Coordinator and Session organizer of the IEEE International Geoscience and Remote Sensing Symposium 2015 (IGARSS 2015), Milan, Italy,

Committee membership

- July 2015.
- Technical Program Committee (TPC) Session organizer of the IEEE International Geoscience and Remote Sensing Symposium 2016 (IGARSS 2016), Beijing, China, July 2016.
 - Co-chair of the Conference on Image and Signal Processing for Remote Sensing XXII, SPIE 23rd International Symposium on Remote Sensing, Edinburgh, Scotland, September 2016.
 - Member of the Programme Committee of the Conference on Image and Signal Processing for Remote Sensing XII, SPIE 13th International Symposium on Remote Sensing, Stockholm, Sweden, September 2006.
 - Member of the Programme Committee of the Conference on Image and Signal Processing for Remote Sensing XIII, SPIE 14th International Symposium on Remote Sensing, Firenze, Italy, September 2007.
 - Member of the Scientific Committee of the IEEE Fourth International Workshop on the Analysis of Multi-Temporal Remote Sensing Images (MultiTemp 2007), Leuven, Belgium, July 2007.
 - Member of the Programme Committee of the Conference on Image and Signal Processing for Remote Sensing XIV, SPIE 15th International Symposium on Remote Sensing, Cardiff, Wales, United Kingdom, September 2008.
 - Member of the Scientific Committee of the IEEE Fifth International Workshop on the Analysis of Multi-Temporal Remote Sensing Images (MultiTemp 2009), Mystic, Connecticut, USA, July 2009.
 - Member of the Programme Committee of the Conference on Image and Signal Processing for Remote Sensing XV, SPIE 16th International Symposium on Remote Sensing, Berlin, Germany, September 2009.
 - Member of the Programme Committee of the Conference on Image and Signal Processing for Remote Sensing XVI, SPIE 17th International Symposium on Remote Sensing, Toulouse, France, September 2010.
 - Member of the Scientific Committee of the IEEE 2010 GOLD Remote Sensing Conference, Livorno, Italy, 2010.
 - Member of the Programme Committee of the Conference on Image and Signal Processing for Remote Sensing XVII, SPIE 18th International Symposium on Remote Sensing, Prague, Czech Republic, September 2011.
 - Member of the International Program Committee of the International Conference on Pattern Recognition Applications and Methods, ICPRAM 2012, Algarve, Portugal, February 2012.
 - Member of the Technical Program Committee of the IEEE Tyrrhenian Workshop on Advances in Radar and Remote Sensing, Napoli, Italy, September 2012.
 - Member of the Scientific Committee of the IEEE 2012 GOLD Remote Sensing Conference, Roma, Italy, 2012.
 - Member of the Programme Committee of the Conference on Image and Signal Processing for Remote Sensing XVIII, SPIE 19th International Symposium on Remote Sensing, Edinburgh, United Kingdom, September 2012.
 - Member of the International Program Committee of the International Conference on Pattern Recognition Applications and Methods, ICPRAM 2013, Barcelona, Spain, February 2013.
 - Member of the Scientific Committee of the ISPRS Workshop on Image Sequence Analysis for Object and Change Detection, ISA 2013, Antalya, Turkey, 11 November 2013.
 - Member of the Programme Committee of the Conference on Image and Signal Processing for Remote Sensing XIX, SPIE 20th International Symposium on Remote Sensing, Dresden, Germany, September 2013.
 - Member of the International Program Committee of the International Conference on Pattern Recognition Applications and Methods, ICPRAM 2014, Angers, Loire Valley, France, March 2014.
 - Member of the Scientific Committee of the IEEE Eighth International Workshop on the Analysis of Multi-Temporal Remote Sensing Images (MultiTemp 2015), Annecy, France, July 2015.
 - Member of the International Program Committee of the International Conference on Pattern Recognition Applications and Methods, ICPRAM 2015, Lisbon, Portugal, January 2015.
 - Member of the Program Committee of the ISPRS Workshop on Image Sequence Analysis for Object and Change Detection, ISA 2015, Montpellier, France, October 2015.
 - Member of the Program Committee of the GEOSPATIAL WEEK 2015 (ISPRS Geospatial Week 2015), La Grande Motte, France, 28th September - 2nd October 2015.
 - Member of the Program Committee of the Conference on Big Data from Space (BiDS 2016), Santa Cruz de Tenerife, Spain, 15-17 March 2016.
 - Member of the International Program Committee of the International Conference on Pattern Recognition Applications and Methods, ICPRAM 2016, Rome, Italy, February 2016.

Session chair

- Session Chair at the International Geoscience and Remote Sensing Symposium (IGARSS 2007), Barcelona, Spain, July 2007.
- Session Chair at the International Geoscience and Remote Sensing Symposium (IGARSS 2008),

International collaborations and experiences

- Boston, Massachusetts, US, July 2008.
- Session Chair at the International Geoscience and Remote Sensing Symposium (IGARSS 2010), Honolulu, Hawaii, July 2010.
- Session Chair at the IEEE Sixth International Workshop on the Analysis of Multi-Temporal Remote Sensing Images (MultiTemp 2011), Trento, Italy, July 2011.
- Session Chair at the International Geoscience and Remote Sensing Symposium (IGARSS 2011), Vancouver, Canada, July 2011.
- Session Chair at the International Geoscience and Remote Sensing Symposium (IGARSS 2012), Munich, Germany, July 2012.
- Session Chair at the Conference on Image and Signal Processing for Remote Sensing XVIII, SPIE 19th International Symposium on Remote Sensing, Edinburgh, United Kingdom, September 2012.
- Session Chair at the International Geoscience and Remote Sensing Symposium (IGARSS 2013), Melbourne, Australia, July 2013.
- Session Chair at the International Geoscience and Remote Sensing Symposium (IGARSS 2014), Québec City, Québec, Canada, July 2014.
- Session Chair at the Conference on Image and Signal Processing for Remote Sensing XX, SPIE 21st International Symposium on Remote Sensing, Amsterdam, Netherlands, September 2014.
- Session Chair at the Big data in Image Time Series from space conference, ESA-ESRIN, Frascati, Rome, November 2014.
- Session Chair at the International Geoscience and Remote Sensing Symposium (IGARSS 2015), Milan, Italy, July 2015.
- Session Chair at the Conference on Image and Signal Processing for Remote Sensing XX, SPIE 21st International Symposium on Remote Sensing, Toulouse, France, September 2015.
- Since 2005 research collaboration with the Indian Institute of Technology (IIT), Bombay, and the Indian Statistical Institute (ISI) and the Jadavpur University (JU), Kolkata, within the ITPAR – India-Trento Program for Advanced Research.
- Post-doc visiting at the Signal Processing Group, Department of Electronic Engineering, University of Valencia, Spain. (February 2007 - May 2008).
- Research collaborations with the following universities:
 - University of Iceland (Reykjavik, Iceland);
 - University of Lausanne (Lausanne, Switzerland);
 - University of Valencia (Valencia, Spain);
 - Indian Institute of Technology, IIT, (Mumbai, India);
 - Indian Statistical Institute, ISI (Kolkata, India);
 - Jadavpur University (Kolkata, India).
- Supervisor of the foreign visiting students:
 - Megha Kothari, Ph.D. student (Jadavpur University, Kolkata, India);
 - Pallab Mandal (Jadavpur University, Kolkata, India);
 - Swarnajyoti Patra (Jadavpur University, Kolkata, India);
 - Shilpa Inamdar, Master student (IIT, Mumbai, India);
 - Kanchan Bahirat, Master student (IIT, Mumbai, India);
 - Michele Volpi, Master student (University of Lausanne, Lausanne, Switzerland);
 - Badri Naryan Subudhi, Ph.D. student (ISI, Kolkata, India);
 - Anindya Halder, Ph.D. student (ISI, Kolkata, India);
 - Alexandru-Ioan Ciurea, Ph.D. student (Polytechnic University of Bucharest, Romania);
 - Blanca María Priego Torres, Ph.D. student (University of Granada, Spain);
 - Daniel Capella Zanotta, Ph.D. student (Federal University Foundation of Rio Grande (FURG), Rio Grande, Brazil);
 - Biplab Banerjee, Ph.D. student (IIT, Mumbai, India);
 - Ankit Agrawal, Master student (IIT, Mumbai, India);
 - Shaunak De, Ph.D. student (IIT, Mumbai, India).

Professional Societies

- IEEE (Institute of Electrical and Electronics Engineers), member since 2005, senior member since 2013.
- GTTI (Gruppo Nazionale di Ricerca di Telecomunicazioni e Teoria dell'Informazione).
- CNIT (Consorzio Nazionale Interuniversitario per le Telecomunicazioni) till 2013.
- GIRPR (Gruppo Italiano Ricercatori in Pattern Recognition).

Teaching

- Teaching assistant for Comunicazioni Elettriche 2 (Digital communication systems) course, Bachelor in Telecommunication Engineering – University of Trento:
 - a.y. 2003/04, 40 hours;

	<ul style="list-style-type: none"> • a.y. 2004/05, 30 hours; • a.y. 2005/06, 48 hours; • a.y. 2006/07, 65 hours; • a.y. 2007/08, 46 hours. <ul style="list-style-type: none"> - Support to the preparation of teaching material and slides for Comunicazioni Elettriche 2 (Digital communication systems) course, Bachelor in Telecommunication Engineering – University of Trento (2003). - Teaching assistant for Sistemi di Telerilevamento (Remote sensing systems) course, Bachelor in Telecommunication Engineering – University of Trento: <ul style="list-style-type: none"> • a.y. 2009/10, 20 hours; • a.y. 2006/07, 15 hours; • a.y. 2005/06, 10 hours; • a.y. 2004/05, 10 hours. - Support to the preparation of teaching material and slides for Sistemi di Telerilevamento Radar (Remote Sensing Radar Systems) – Master in Telecommunication Engineering – University of Trento (2006). - Teaching assistant for Comunicazioni Elettriche (Digital communication systems) course, Bachelor in Telecommunication Engineering – University of Trento: <ul style="list-style-type: none"> • a.y. 2012/13, 60 hours; • a.y. 2011/12, 45 hours; • a.y. 2010/11, 45 hours. - Teaching assistant for Advanced Remote Sensing Systems for Environment course, Master in Telecommunication Engineering – University of Trento: <ul style="list-style-type: none"> • a.y. 2011/2012, 20 hours. - Support to the preparation of teaching material and slides for Advanced Remote Sensing Systems for Environment course, Master in Telecommunication Engineering – University of Trento (a.y. 2011/2012).
Students supervision	<ul style="list-style-type: none"> - Co-supervisor of Ph.D. students at the University of Trento: <ul style="list-style-type: none"> • Carlo Marin (cycle 27th, 2011-2015); • Sicong Liu (cycle 27th, 2011-2015). - Supervisor of Ph.D. students: <ul style="list-style-type: none"> • Yady Tatiana Solano Correa (cycle 29th, 2013-2016); • Davide Pirrone (cycle 30th, 2014-2017); • Aravind Harikumar (cycle 30th, 2014-2017). - Supervisor of post-docs: <ul style="list-style-type: none"> • Youkyung Han (April 2014 – December 2015). - Co-supervisor of several Bachelor (more than 20) and Master (more than 15) theses in Communication Engineering – University of Trento (from 2004 to 2014).
Main Roles in Projects	<ul style="list-style-type: none"> - Task responsible for the project Improve the science of processes within the cryosphere by integrating hydrological modelling with remote sensing in a multi-level data fusion approach (CRYOMOMN-SciPro - EUREGIO) [2016-2018]. - Co-Principal Investigator of the project Scientific Exploitation of Operational Missions (SEOM) – S2-4Sci Land and Water – Multi-temporal Analysis (European Space Agency) [2016-2017]. - Co-Principal Investigator of the project Advanced methods for the analysis of optical and radar remote sensing images acquired by last generation satellite systems (ITPAR – India-Trento Program for Advanced Research - phase 3) [2012-2014]. - Product Assurance Manager of the Radar for Icy Moon Exploration (RIME) Experiment for ESA JUJupiter ICy moon Explorer (JUICE) mission (Phase A/B1, B2). - Project Manager of the Radar for Icy Moon Exploration (RIME) Experiment for ESA JUJupiter ICy moon Explorer (JUICE) mission (Phase A/B1, B2). - Co-Investigator of the Radar for Icy Moon Exploration (RIME) Experiment for ESA JUJupiter ICy moon Explorer (JUICE) mission. - Co-Principal Investigator of ATS4S - Evaluation of snow proprieties in the Alpine region using long ASAR time-series (European Space Agency) [2013-2015].
Participation to Projects	<ul style="list-style-type: none"> - JUICE-RIME – Design, development, and scientific exploitation of the Radar for Icy Moon Exploration (RIME) instrument for the JUJupiter ICy moons Explorer (JUICE) mission (European Space Agency – Italian Space Agency – NASA) [2013-2035]. - CRYOMOMN-SciPro – Improve the science of pocesses within the cryosphere by integrating hydrological modelling with remote sensing in a multi-level data fusion approach (EUREGIO) [2016-2018].

	<ul style="list-style-type: none"> - SEOM – Scientific Exploitation of Operational Missions – S2-4Sci Land and Water – Multi-temporal Analysis (European Space Agency) [2016-2017]. - MS-TS - Analysis of MultiSensor VHR image Time Series (DigitalGlobe Foundation) [2014-2016]. - ATS4S - Evaluation of snow proprieties in the Alpine region using long ASAR time-series (European Space Agency) [2013-2015] (Co-PI). - Product Feature extraction analysis (PFA) (European Space Agency) [2013-2014]. - An innovative framework for the Integration of multi-source data to determine soil moisture and evapotranspiration at high resolution in Alpine regions (HiResAlp)-[2012-2015]. - Mapping and the citizen sensor (ICT COST Action - European Union)-[2012-2016]. - Advanced methods for the analysis of optical and radar remote sensing images acquired by last generation satellite systems (ITPAR – India-Trento Program for Advanced Research - phase 3) [2012-2014]. - CRIOPAT - Generation and regular updating of snow cover maps by the analysis of time series of satellite remote sensing images (Trento Province)-[2011-2013]. - Advanced remote sensing systems for environmental monitoring - [2010-2012]. - SISAR - Automatic Recognition of Very High Resolution SAR Images (IDS S.p.A.) - [2010-2012]. - COSMO-SkyMed- Development and validation of multitemporal image analysis methodologies for multirisk monitoring of critical structures and infrastructures. (Italian Space Agency) - [2009-2011]. - Advanced techniques for remote sensing image processing and recognition (ITPAR – India-Trento Program for Advanced Research - phase 2) [2008-2011]. - IIM-TS - Image Information Mining in Time Series - European Space Agency - [2007-2010]. - LIMES – Land and see integrated monitoring for European security (Integrated Project FP6-2005-European Union) - [2006-2009]. - HYPERKERNEL - Development of advanced semi-supervised kernel methods for classification of hyperspectral remote sensing images (MIUR - Italian Ministry of the Education, Research and University, Integrated Actions Italy-Spain) - [2006-2009]. - Development and validation of novel data fusion techniques for environmental remote sensing (MIUR - Italian Ministry of the Education, Research and University - [2006-2007]. - Advanced techniques for remote sensing image processing and recognition (ITPAR – India-Trento Program for Advanced Research - phase 1) - [2004-2007]. - Processing and Analysis of Multitemporal and Hypertemporal Remote Sensing images for Environmental Monitoring (MIUR - Italian Ministry of the Education, Research and University) - [2003-2004]. - Services for the Kyoto Protocol Verification (ESA - European Space Agency) - [2002-2005].
Technical skills	<ul style="list-style-type: none"> - Remote sensing software: ENVI, SARscape, ArcGIS, eCognition. - Programming languages: C/C++, Matlab, IDL, Visual Basic, SQL. - Operating systems: Windows (2000, XP, Vista). - Engineering Software: Matlab, Maple, AutoCAD. - Computer graphics software: Adobe Photoshop and Illustrator, CorelDraw. - Microsoft Office suite: Word, Power Point, Excel, Access, Publisher, Visio. - Web page design: Macromedia Dreamweaver, CSS, HTML, PHP.
Driving licence	Italian driving license A (standard cars)
Additional information	
Abroad experiences	February 2007 - May 2008: Post-doc visiting at the Signal Processing Group, Department of Electronic Engineering, University of Valencia, Spain.
Other Titles	January 20, 2009- License to practice as an engineer (according to Italian regulations), exam passed, June 2004.
List of publications	
International journals	<p>[J1] F. Bovolo, L. Bruzzone, "A Detail-Preserving Scale-Driven Approach to Unsupervised Change Detection in Multitemporal SAR Images," <i>IEEE Transactions on Geoscience and Remote Sensing</i>, Vol.43, No. 12, pp. 2963-2972, 2005.</p> <p>[J2] F. Bovolo, L. Bruzzone, "A Theoretical Framework for Unsupervised Change Detection Based on Change Vector Analysis in Polar Domain," <i>IEEE Transactions on Geoscience and Remote Sensing</i>, Vol. 45, No. 1, pp. 218-236, 2007.</p> <p>[J3] S. Ghosh, L. Bruzzone, S. Patra, F. Bovolo e A. Ghosh, "A Context-Sensitive Technique for Unsupervised Change Detection based on Hopfield Type Neural Networks," <i>IEEE Transactions</i></p>

- on *Geoscience and Remote Sensing*, Vol. 45, No. 3, pp. 778-789, 2007.
- [J4] F. Bovolo, L. Bruzzone, "A Split-Based Approach to Unsupervised Change Detection in Large-Size Multitemporal Images: Application to Tsunami Damage Assessment," *IEEE Transactions on Geoscience and Remote Sensing*, Vol. 45, No. 6, pp. 1658-1670, 2007.
- [J5] M. Dalponte, F. Bovolo, L. Bruzzone, "Automatic selection of frequency and time intervals for classification of EEG signals," *Electronics Letters*, Vol. 43, No. 25, pp. 1406-1408, 2007.
- [J6] M. Tyagi, F. Bovolo, A.K. Mehra, S. Chaudhuri, L. Bruzzone, "A Context-Sensitive Clustering Technique Based on Graph-Cut Initialization and Expectation-Maximization Algorithm," *IEEE Geoscience and Remote Sensing Letters*, Vol. 5, No. 1, pp. 21-25, 2008.
- [J7] S. Inamdar, F. Bovolo, L. Bruzzone, S. Chaudhuri, "Multidimensional Probability Density Function Matching for Pre-processing of Multitemporal Remote Sensing Images," *IEEE Transactions on Geoscience and Remote Sensing*, Vol. 46, No. 4, pp. 1243-1252, 2008.
- [J8] F. Bovolo, L. Bruzzone, M. Marconcini, "A Novel Approach to Unsupervised Change Detection Based on a Semisupervised SVM and a Similarity Measure," *IEEE Transactions on Geoscience and Remote Sensing*, Vol. 46, No. 7, pp. 2070-2082, 2008.
- [J9] M. Dalla Mura, J.A. Benediktsson, F. Bovolo, L. Bruzzone, "An Unsupervised Technique Based on Morphological Filters for Change Detection in Very High Resolution Images," *IEEE Geoscience and Remote Sensing Letters*, Vol. 5, No. 3, pp. 433-437, 2008.
- [J10] G. Nollo, M. Marconcini, L. Faes, F. Bovolo, F. Ravelli, L. Bruzzone, "An Automatic System for the Analysis and the Classification of Human Atrial Fibrillation Patterns from Intracardiac Electrograms," *IEEE Trans Biomedical Engineering*, Vol. 55, No. 9, pp. 2275-2285, 2008.
- [J11] F. Bovolo, "A Multilevel Parcel-Based Approach to Change Detection in Very High Resolution Multitemporal Images," *IEEE Geoscience and Remote Sensing Letters*, Vol. 6, No. 1, pp. 33-37, 2009.
- [J12] F. Bovolo, L. Bruzzone, S. Marchesi, "Analysis and Adaptive Estimation of the Registration Noise Distribution in Multitemporal VHR Images," *IEEE Transactions on Geoscience and Remote Sensing*, Vol. 47, No. 8, Part 1, pp. 2658-2671, 2009.
- [J13] F. Bovolo, L. Bruzzone, L. Capobianco, S. Marchesi, F. Nencini, A. Garzelli, "Analysis of the Effects of Pansharpening in Change Detection on VHR Images," *IEEE Geoscience and Remote Sensing Letters*, Vol. 7, No. 1, pp. 53-57, 2010.
- [J14] S. Marchesi, F. Bovolo, L. Bruzzone, "A context-sensitive technique robust to registration noise for change detection in VHR multispectral images," *IEEE Transactions on Image Processing*, Vol. 19, No. 7, pp. 1877-1889, 2010.
- [J15] F. Bovolo, G. Camps-Valls, L. Bruzzone, "A Support Vector Domain Method for Change Detection in Multitemporal Images," *Pattern Recognition Letters*, Vol. 31, No. 10, pp. 1148-1154, 2010.
- [J16] J. Muñoz-Mari, F. Bovolo, L. Gomez-Chova, L. Bruzzone, G. Camps-Valls, "Semisupervised One-Class Support Vector Machines for Classification of Remote Sensing Data," *IEEE Transactions on Geoscience and Remote Sensing*, Vol. 48, No. 8, pp. 3188-3197, 2010.
- [J17] F. Bovolo, L. Bruzzone, L. Carlin, "A Novel Technique for Sub-pixel Image Classification Based on Support Vector Machine," *IEEE Transactions on Image Processing*, Vol. 19, No. 11, pp. 2983-2999, 2010.
- [J18] B. Murphy, M. Poesio, F. Bovolo, M. Dalponte, L. Bruzzone, H. Lakany, "EEG decoding of semantic category reveals distributed representations for single concepts," *Brain and Language*, Vol. 117, No. 1, pp. 12-22, 2011.
- [J19] B. Demir, F. Bovolo, L. Bruzzone, "Detection of Land-Cover Transitions in Multitemporal Remote Sensing Images with Active Learning Based Compound Classification," *IEEE Transactions on Geoscience and Remote Sensing*, Vol. 50, No. 5, pp. 1930-1941, 2012.
- [J20] F. Bovolo, S. Marchesi, L. Bruzzone, "A Framework for Automatic and Unsupervised Detection of Multiple Changes in Multitemporal Images," *IEEE Transactions on Geoscience and Remote Sensing*, Vol. 50, No. 6, pp. 2196-2212, 2012.
- [J21] K. Bahirat, F. Bovolo, L. Bruzzone, S. Chaudhuri, "A Novel Domain Adaptation Bayesian Classifier for Updating Land-Cover Maps in Complex Scenarios," *IEEE Transactions on Geoscience and Remote Sensing*, Vol. 50, No. 7, pp. 2810-2826, 2012.
- [J22] M. Volpi, D. Tuia, F. Bovolo, M. Kanevski, L. Bruzzone, "Supervised Change Detection in VHR Images Using Contextual Information and Support Vector Machines," *International Journal of Applied Earth Observation and Geoinformation*, Vol. 20, pp. 77-85, 2013.
- [J23] B. Demir, F. Bovolo, L. Bruzzone "Updating Land-Cover Maps by Classification of Image Time Series: A Novel Change-Detection-Driven Transfer Learning Approach", *IEEE Transactions on Geoscience and Remote Sensing*, Vol.51, pp.300-312, 2013. DOI: 10.1109/TGRS.2012.2195727.

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