

Lamberto Ballan, Ph.D.

Curriculum Vitae – Updated: August 24, 2017

Personal details

Place of Birth: Firenze, Italy

Citizenship: Italian

Residence: S. Donato in collina, FI, Italy

Spoken Languages: Italian (*native*), English (*fluent*)

Contact

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Research Interests

- Computer Vision, Multimedia, Pattern Recognition, Machine Learning, Image Processing, A.I.

Research Profile

My research interests lie at the boundary of computer vision and multimedia, specifically focused on exploiting big data for visual recognition problems. The main focus of my current research is on designing learning algorithms that make the most effective use of prior and contextual knowledge in presence of sparse and noisy labels.

I am currently an Assistant Professor (tenure track) of Computer Science at the University of Padova, Italy. Previously, I was a Senior Postdoctoral Researcher at Stanford University working in the Artificial Intelligence Lab, and University of Florence, Italy, supported by a prestigious Marie Curie Fellowship from the European Commission under the FP7-2013-IOF programme. I earned my Ph.D. in Computer Engineering, Multimedia and Telecommunication from the University of Florence in 2011. I also spent a short period at the Signal and Image Processing department at Telecom ParisTech (France) in 2010.

I have published more than 40 papers in the most prestigious journals and conferences in computer vision, multimedia and image processing. My papers have been cited more than 1400 times (H-index 19) and I received the best paper award at the ACM Workshop on Social Media 2010. I am the lead organizer of the Web-scale Vision and Social Media workshops (CVPR/ICCV/ECCV 2012-17) and I gave tutorials at four international conferences (including ICPR’12, ACM-MM’15, CVPR’16). I have actively been participating in various roles in several EU FP6/FP7 research projects and a number of industry-funded projects in Europe and the United States, raising about 290K euro of research funds.

Academic Appointments

- **University of Padova**, Italy – CS, Department of Mathematics “Tullio Levi-Civita” 2017/10 – Assistant Professor (*Tenure Track – RTDb L.240/2010*)
- **University of Florence**, Italy – *Media Integration and Communication Center* 2016/10 – 2017/09
Marie Curie Fellow / Senior Postdoctoral Researcher
Working on large-scale visual recognition, deep learning and knowledge transfer; Advisor: Prof. A. Del Bimbo.
- **Stanford University**, CA, USA – *AI Lab, Computer Science Department* 2014/10 – 2016/09
Marie Curie Fellow / Senior Postdoctoral Researcher
Working on large-scale visual recognition, deep learning, visual data mining and knowledge transfer; Advisors: Profs. L. Fei-Fei, S. Savarese, B. Girod.

- **University of Florence, Italy** – *Media Integration and Communication Center* 2011/01 – 2014/09
Postdoctoral Researcher
Working on image annotation, social media analysis and image processing; Advisor: Prof. A. Del Bimbo.
 - **TELECOM ParisTech, France** – *Signal and Image Processing Department* 2010/04 – 2010/07
Visiting Scholar
Working on Context-Dependent Kernels for visual recognition; Advisor: Dr. Hichem Sahbi.
 - **University of Florence, Italy** – *Media Integration and Communication Center* 2007/03 – 2010/12
Research Assistant
Working on image/video retrieval and multimedia content analysis; Advisor: Prof. A. Del Bimbo.
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Education

- **University of Florence, Italy** 2011/04
Ph.D. in Computer Engineering, Multimedia and Telecommunication
Thesis: “Object and event recognition in multimedia archives using local visual features”
Advisors: Profs. A. Del Bimbo (primary), M. Bertini (secondary)
 - **University of Florence, Italy** 2006/12
Laurea Degree (5 years degree, M.S. equivalent) in Computer Engineering
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Honors, Awards and Scholarships

- **Italian Habilitation** as Associate Professor in *Computer Science* (01/B1 – ASN 2016) and *Computer Engineering and Information Processing Systems* (09/H1 – ASN 2013).
 - **Marie Curie IOF**, International Outgoing Fellowship, of the European Commission (call FP7-2013).
Marie Curie individual fellowships are highly prestigious and competitive and are meant to support the best, most promising European researchers (accept. rate 12%).
Project: “EAGLE: Exploiting semAntic and social knowledGe for visual rEcognition”.
Advisors: Prof. A. Del Bimbo (Univ. of Florence) and Prof. Fei-Fei Li (Stanford University).
Funding: 272K €, 2014/10 – 2017/09 (Grant No. 623930).
 - Young Researcher Support Grant for attending the 15th IEEE International Conference on Computer Vision (ICCV), Santiago, Chile, 2015/11; Funding: 1.5K \$.
 - Research Support Grant by the Tuscany Region, Italy, as recognition for reaching the final round of the EU FP7 Marie Curie IOF selections, 2012/04; Funding: 5K €.
 - Selected among the best students who attended one of the first five editions of the International Computer Vision Summer School (ICVSS) to contribute to a book edited by Springer, 2012/06 [B1].
A total of 15 students have been selected; around 150 students from 40+ countries attend ICVSS each year.
 - **Best Paper Award**: 2nd ACM SIGMM International Workshop on Social Media (WSM), in conjunction with ACM Multimedia 2010 [C17].
 - **MIUR Scholarship** for pursuing a Ph.D. in Computer Engineering, Multimedia and Telecommunication at Università degli Studi di Firenze, 2008/01 – 2010/12; Funding: 41K €.
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Teaching Experience

- **Adjunct Professor**, Bachelor's in Computer Science, Univ. of Padova, Italy
 - “Automata Theory, Languages and Computation” a.y. 2016/2017
 - Teaching responsibility: 32 hours (4 Credits), Enrollment: 230 students*
- **Adjunct Professor**, Ph.D. program in Smart Computing, U. Florence, Pisa, Siena, Italy
 - “Visual Recognition: From Handcrafted Features to End-to-End Learning” a.y. 2016/2017
 - Teaching responsibility: 16 hours (3 Credits), Enrollment: 15 students*
- **Adjunct Professor**, Ph.D. program in Information Engineering, Univ. of Florence, Italy
 - “Recognition and Classification of Visual Context” (*short hands-on course*) a.y. 2013/2014
 - Teaching responsibility: 8 hours (2 Credits), Enrollment: 15 students*
- **Adjunct Professor**, Bachelor's in Industrial Design, School of Architecture, Univ. of Florence
 - “Lab. Disegno Industriale III: Multimedia and web design” a.y. 2010/2011
 - Teaching responsibility: 25 hours (3 Credits), Enrollment: 35 students*
- **Guest Lecturer**, Bachelor's in Computer Science, Stanford University, USA
 - “Computer Vision: from 3D Reconstruction to Recognition”, Prof. S. Savarese a.y. 2015/2016
 - Lectures: Convolutional Neural Networks, Object Recognition*
- **Guest Lecturer**, Bachelor's in Computer Science, Stanford University, USA
 - “Computer Vision: Foundations and Applications”, Prof. Fei-Fei Li a.y. 2014/2015
 - Lectures: Difference of Gaussians, SIFT*
- **Teaching Assistant**, M.Sc. in Computer Engineering, Univ. of Florence, Italy
 - “Visual and Multimedia Recognition”, Prof. A. Del Bimbo a.y. 2013/2014
 - “Multimedia Databases”, Prof. A. Del Bimbo a.y. 2012/2013
 - “Multimedia Databases”, Prof. A. Del Bimbo a.y. 2011/2012
 - “Multimedia Databases”, Prof. A. Del Bimbo a.y. 2010/2011
 - “Multimedia Databases”, Prof. A. Del Bimbo a.y. 2009/2010
 - “Multimedia Databases”, Prof. A. Del Bimbo a.y. 2008/2009
 - “Multimedia Databases”, Prof. A. Del Bimbo a.y. 2007/2008
 - Teaching responsibility: 15 hours, Enrollment: ~30 (per year)*
- **Teaching Assistant**, Bachelor in Computer Engineering, Univ. of Florence, Italy
 - “Fundamentals of Multimedia Design and Production”, Prof. A. Del Bimbo a.y. 2010/2011
 - “Fundamentals of Multimedia Design and Production”, Prof. A. Del Bimbo a.y. 2009/2010
 - Teaching responsibility: 8 hours, Enrollment: ~50 (per year)*
- **Project Mentor and Lecturer**, Master in Multimedia Content Design, Univ. of Florence, Italy
 - “Laboratory on HTML and Web Design”, a.y. 2003/2004
 - “Laboratory on HTML and Web Design”, a.y. 2002/2003
 - Teaching responsibility: 40 hours, Enrollment: ~30 (per year)*

Advising

- **Ph.D. Students:**
 - Pasquale Coscia, 2016–present (PhD, Univ. of Campania) [C4]
 - Francesco Castaldo, 2015 (Visiting PhD at Stanford / Univ. of Campania) [C3, C4]
 - Tiberio Uricchio, 2012-2016 (PhD, Univ. of Florence) [A3, A5, C7, C9, C11, C12]

- **Graduate Students** (M.Sc. Thesis):
 - Ansh Kapil, 2016 (Technical Univ. of Munich) [A1]
 - Alessio Antonielli, 2014 (Univ. of Florence)
 - Simone Macaluso, 2014 (Univ. of Florence)
 - Claudio Tortorici, 2013 (Univ. of Florence) – *next research assistant at Khalifa University, UAE*
 - Alessio Bazzica, 2012 (Univ. of Florence) – *next PhD student at Delft Univ. of Technology, NL*
 - Tiberio Uricchio, 2012 (Univ. of Florence) [C9] – *next PhD student at Univ. of Florence, Italy*
 - Andrea M. Serain, 2012 (Univ. of Florence) [C14]
 - Benito Zaccone, 2012 (Univ. of Florence) [C14] – *next PhD student at Univ. of Florence, Italy*
 - Luca Del Tongo, 2011 (Univ. of Florence) [A7]
 - Gianluca Franchi, 2010 (Univ. of Florence)
 - Filippo Amendola, 2009 (Univ. of Florence)
 - Lorenzo Seidenari, 2008 (Univ. of Florence) [C19, C20] – *next PhD stud at Univ. of Florence, Italy*
 - Arjun Jain, 2008 (Visiting Scholar, Univ. of Florence) [C25] – *next PhD at Max Planck Inst., Germany*
- **Undergraduate Students** (B.Sc. Thesis / Research projects):
 - Giulia Fontanini, 2012 (Univ. of Florence)
 - Michael Francalanci, 2011 (Univ. of Florence)
 - Alessio Bazzica, 2008 (Univ. of Florence) [C22]

Funded Research Projects

- **EAGLE**: “Exploiting semAntic and social knowledGe for visual rEcognition” 2014/10 – 2017/09
 Funding: European Commission, Marie Curie IOF-2013 FP7 no. 623930 272K €
 Role: **Principal Investigator**; Advisors: Profs. A. Del Bimbo, Fei-Fei Li
- “Webly-Supervised Deep Learning for Large-Scale Activity Recognition” 2016/06 – 2017/07
 Funding: Bavaria California Technology Center (BaCaTeC), Germany 5.5K €
 Role: **Co-Principal Investigator** with Dr. F. Tombari

Participation in Research Projects

- “Predicting human motion in complex real world environments” 2015/06 – 2016/09
 Funding: Panasonic, Toyota and MURI, Department of Defense, USA
 Role: **WP leader** (human-space interactions for path prediction); P.I.: Prof. S. Savarese
- **PITAGORA**: “Innovative technologies and processes for airport management” 2013/01 – 2014/07
 Funding: Tuscany Region, Italy, and European Regional Development Fund
 Role: **WP leader** (passenger experience); P.I.: Prof. A. Del Bimbo
- **AQUIS-CH**: “Innovative technologies for cultural heritage fruition” 2012/11 – 2014/09
 Funding: Tuscany Region, Italy, and European Social Fund POR FSE 2007-2013
 Role: **WP leader** (knowledge exploitation in social media); P.I.: Prof. A. Del Bimbo
- **IM3I**: “Immersive Multimedia Interfaces” 2010/07 – 2010/11
 Funding: European Commission, IST FP7 no. 222267
 Role: researcher; Principal Investigator: Prof. A. Del Bimbo
- **FreeSURF**: “FREE Surveillance in a pRivacy-respectFul way” 2008/05 – 2008/07
 Funding: Italian Ministry of Research and Education, MIUR PRIN
 Role: researcher; Principal Investigator: Prof. A. Del Bimbo

- **VIDI-Video**: “Semantic Video Search With a Large Thesaurus of Concepts” 2007/03 – 2009/12
Funding: European Commission, IST FP6 no. 045547
Role: researcher; Principal Investigator: Prof. A. Del Bimbo

Participation in Technology Transfer Projects

- **STAMAT**: “Social Topics and Media Analysis Tool” 2012/01 – 2012/12
Research grant: Università di Firenze – Telecom Italia s.p.a.
Role: researcher and developer
- “Automatic recognition of advertising trademarks in sports videos” 2007/03 – 2010/02
Research grant: Università di Firenze – Sport System Europe s.r.l.
Role: **technical lead of research group** and developer

International Collaborations and Research Visits

- **Stanford University**, Stanford, CA, USA 2014/10 – present
Collaborators: Profs. L. Fei-Fei, S. Savarese, B. Girod
I have been appointed as postdoc in Fei-Fei’s VisionLab, who has been the advisor of my Marie Curie project, in October 2014 (see [C5]). Since the spring of 2015, I also established collaborations with S. Savarese - Computer Vision & Geometry lab (see [C3, C4]), and B. Girod - Image, Video and Multimedia Systems group.
- **University of Campania “Luigi Vanvitelli”**, Caserta, Italy 2015/06 – present
Collaborator: Prof. F. Palmieri
I started collaborating with F. Palmieri while one of his Ph.D. students (F. Castaldo) was visiting Stanford. Since then, I am co-supervising another Ph.D. student (P. Coscia) on a project on trajectory prediction.
- **Technical University of Munich**, Germany 2016/01 – 2017/06
Collaborators: F. Tombari (TUM), N. Navab (TUM)
*I have established a collaboration between Stanford and TUM on webly supervised deep learning for large-scale activity recognition [A1]. I was the **co-principal investigator** at Stanford and co-supervisor of a team of four researchers. This project was also supported with a mini-grant from BaCaTeC.*
- **University of Amsterdam**, NL, and **Renmin University of China**, Beijing 2014/01 – 2016/12
Collaborators: C. Snoek (Univ. Amsterdam), X. Li (Renmin Univ. China)
Long collaboration on image tagging, refinement and retrieval. Our joint work is a huge effort to survey and compare the most relevant previous works on a novel large-scale experimental protocol (see our paper on ACM Comp. Surveys [A3]). We have also co-organized tutorials at ACM-MM’15 and CVPR’16.
- **TELECOM ParisTech**, France 2010/04 – 2012/10
Research visit; working with Dr. H. Sahbi (ParisTech)
I spent three months at TELECOM ParisTech in 2010, working on Context-Dependent Kernels for image matching and retrieval. We collaborated until the end of 2012 and we published a paper on IEEE-TIP [A6].

Professional Activities / Academic Service

- **Journal Editor**:
 - **Lead guest editor**, *Computer Vision and Image Understanding (CVIU)* - Elsevier (scheduled for 2017) Special Issue on “Computer Vision and the Web”
 - **Editorial board member**, *Machine Vision and Applications (MVAP)* - Springer 2017/03 – present
 - **Editorial board member**, *Multimedia Tools and Applications (MTAP)* - Springer 2016/09 – present

- **Workshop Organizer / Chair:**
 - **Lead organizer**, *Workshops on Web-scale Vision and Social Media (VSM)*, at ECCV 2012, CVPR 2014, ICCV 2015, ECCV 2016, ICCV 2017
 - 2nd *ONR Workshop on Structured Learning for Scene Understanding*, 2016, Stanford, CA, USA
- **Student Volunteer Chair:**
 - *IEEE International Conference on Computer Vision (ICCV)*, 2017
- **Conference Organizing Committee Member:**
 - *European Conference on Computer Vision (ECCV)*, 2012
 - *ACM Int'l Conference on Multimedia (ACM-MM)*, 2010
- **Area Chair / Senior Program Committee Member:**
 - *ACM International Conference on Multimedia (ACM-MM)*, 2017
 - *IEEE Winter Conference on Applications of Computer Vision (WACV)*, 2016
- **Program Committee Member (selection):**
 - *IEEE Int'l Conference on Computer Vision and Pattern Recognition (CVPR)*, 2014, 2015, 2016, 2017
 - *IEEE International Conference on Computer Vision (ICCV)*, 2015, 2017
 - *European Conference on Computer Vision (ECCV)*, 2012, 2016
 - *ACM International Conference on Multimedia (ACM-MM)*, 2012, 2014, 2015, 2016
 - *ACM International Conference on Multimedia Retrieval (ICMR)*, 2011, 2015, 2016, 2017
 - *IEEE Int'l Conference on Multimedia and Expo (ICME)*, 2013, 2014, 2015, 2016, 2017
 - *International Conference on Pattern Recognition (ICPR)*, 2012, 2014, 2016
 - *IEEE Winter Conference on Applications of Computer Vision (WACV)*, 2017
 - *Asian Conference on Computer Vision (ACCV)*, 2016
 - *Int'l Conference on Computer Vision Theory and Applications (VISAPP)*, 2014, 2015
 - *IEEE Int'l Conf on Advanced Video and Signal-Based Surveillance (AVSS)*, 2017
 - *IEEE International Conference on Semantic Computing (ICSC)*, 2012, 2013, 2014, 2015
 - *Workshop on Large Scale Visual Recognition and Retrieval (BigVision)*, at CVPR 2015, 2016
 - *Workshop on Assistive Computer Vision and Robotics (ACVR)*, at ECCV 2016, ICCV 2017
 - *Workshop on Big Data Computer Vision*, at CVPR 2013
 - *Workshop on Analysis and Retrieval of Tracked Events and Motion in Imagery Streams*, at ICCV 2011
 - *Workshop on Deep Learning for Intelligent Multimedia Analytics (DeLIMMA)*, at ICME 2017
 - *Workshop on Wearable and Ego-vision Systems for Augmented Experience (WEsAX)*, at ICME 2015
- **Reviewer for International Journals (selection):**
 - *IEEE Trans. on Pattern Analysis and Machine Intelligence (TPAMI)*, 2012–2017
 - *IEEE Transactions on Multimedia (TMM)*, 2010, 2012–2017
 - *IEEE Transactions on Image Processing (TIP)*, 2016
 - *IEEE Transactions on Information Forensics and Security (TIFS)*, 2012–2013, 2015–2016
 - *IEEE Trans. on Circuits and Systems for Video Technology (TCSVT)*, 2011–2013, 2015–2016
 - *Journal of Machine Learning Research (JMLR)*, 2011
 - *International Journal of Computer Vision (IJCV)* - Springer, 2015
 - *Computer Vision and Image Understanding (CVIU)* - Elsevier, 2013–2016
 - *Pattern Recognition (PR)* - Elsevier, 2008–2014, 2016
 - *Pattern Recognition Letters (PRL)* - Elsevier, 2010–2013, 2016
 - *Image and Vision Computing* - Elsevier, 2014
 - *Neurocomputing* - Elsevier, 2012–2013
 - *Journal of Visual Communication and Image Representation* - Elsevier, 2013–2016
 - *Multimedia Tools and Applications (MTAP)* - Springer, 2009–2014, 2016
 - *IEEE Multimedia*, 2016

- *Int'l Journal of Multimedia Information Retrieval (MMIR) - Springer, 2012-2014*
- *Int'l Journal of Machine Learning and Cybernetics - Springer, 2012*

- **Reviewer for Funding Agencies:**

- *National Institute of Standards and Technology (NIST), USA: project proposal for the USA–Israel Binational Industrial Research and Development (BIRD) Foundation, 2015*

- **University Service, Univ. of Florence, Italy:**

- Co-founded and organized the Vision and Multimedia Reading Group 2013/04 – 2014/08
- Founded and organized the MICC Computer Science Seminars event 2008/06 – 2009/04
- Student representative on the School of Engineering's board 2003/04 – 2006/09

Professional Memberships and Affiliations

- CVF Member, The Computer Vision Foundation 2013/03 – present
- IEEE Member, Institute of Electrical and Electronics Engineers 2008/01 – present
- ACM Member, Association for Computing Machinery 2008/01 – present
- GIRPR Member, the Italian chapter of IAPR 2008/09 – present

Tutorials at International Conferences and Schools

- *“Image Tag Assignment, Refinement and Retrieval”*
 - Int'l Conference on Image Analysis and Processing (ICIAP) 2017/09
 - IEEE Int'l Conf. on Computer Vision and Pattern Recognition (CVPR) 2016/06
 - ACM International Conference on Multimedia (ACM-MM) 2015/10
- *“Hands on Advanced Bag-of-Words Models for Visual Object Recognition”*
 - Int'l Conference on Pattern Recognition (ICPR) 2014/08
 - Int'l Conference on Image Analysis and Processing (ICIAP) 2013/09

Invited Talks and Seminars

- **Keynote speech, “Exploiting noisy web data for large-scale visual recognition”**
 - Int'l Workshop on Visual Understanding by Learning from Web Data, at CVPR 2017/07
- *“Sharing knowledge for large-scale visual recognition”*
 - “Ca' Foscari” University of Venice, Italy – hosted by Prof. M. Pelillo 2017/05
 - University of Padova, Italy – hosted by Prof. T. Vardanega 2017/03
 - University of Catania, Italy – hosted by Prof. G. M. Farinella 2017/01
 - University of Parma, Italy – hosted by Prof. A. Prati 2016/12
 - Univ. of California, Santa Cruz, USA – hosted by Prof. R. Manduchi 2016/09
 - Google Research, Mountain View, USA – hosted by Dr. R. Sukthankar 2016/08
 - Aquifi Inc., Palo Alto, USA – hosted by Dr. C. Dal Mutto 2016/06
- **Panelist, “Visual recognition in the big data and deep learning era”**
 - Int'l Workshop on Web-scale Vision and Social Media (VSM), at ICCV 2015/12
- **Keynote speech, “Data-driven tag refinement and localization in web video”**
 - Int'l Workshop on Large-Scale Video Search and Mining (LSVSM), at CVPR 2015/06

- “*Love Thy Neighbors: Image Annotation by Exploiting Image Metadata*”
– Univ. of California, Berkeley, USA – Stanford/UC Berkeley Vision Meeting 2015/05
- “*Social media annotation: from images to videos*”
– Stanford University, USA – hosted by Prof. L. Fei-Fei 2013/07
- “*Video event classification using string kernels*”
– University of Southern California, Los Angeles, USA – hosted by Prof. G. Medioni 2011/04
- “*Automatic logo detection and recognition in sport videos*”
– TELECOM ParisTech, France – hosted by Dr. H. Sahbi 2009/02
– University of Florence, Italy – MICC Computer Science Seminars 2008/07

Outreach Activities

- **SAILORS**: I have been involved in the first two editions of the Stanford Artificial Intelligence Laboratory’s OutReach Summer program. SAILORS is a two-week technically rigorous camp for high school girls and it is intended to increase diversity in the field of AI (<http://sailors.stanford.edu>).
– **Project mentor**, “*Using computer vision to monitor hand hygiene in hospitals*” 2016/07
– **Research instructor**, “*Nearest neighbors for image recognition and classification*” 2015/08

Publicly Available Software and Technology Transfer

- **Jingwei**: “A framework for evaluating image tag assignment, refinement and retrieval”
This is an open-source testbed for evaluating methods for image tag assignment, tag refinement and tag-based image retrieval. It is developed as part of our survey effort, aiming to provide a timely reflection of the state-of-the-art (ACM-CSUR’16 [A3]). The source code is on GitHub: <http://github.com/li-xirong/jingwei>.
- **SiftForensic**: “Copy-move forgery detection using SIFT features”
This package contains the Matlab implementation of the copy-move detection algorithm presented in IEEE-TIFS’11 [A9]. It is widely used as a baseline for copy-move detection (our related papers have been cited around 400 times). The source code is on GitHub: <http://github.com/lambertoballan/sift-forensic>.
- **Handsonbow**: “Hands on Advanced Bag-of-Words Models for Visual Recognition”
I am co-author of the hands-on bag of words practicals, a collection of Matlab exercises introducing fundamental concepts in visual recognition. It is developed as part of our ICIAP/ICPR tutorials, but is also used in classes on computer vision. The source code is on GitHub: <http://github.com/lambertoballan/handsonbow>.
- **LogoFinder**: “Logo detection and recognition software for SportSystem Europe s.r.l.”
A key output of the technology transfer project with SportSystem s.r.l. is an innovative software for automatic logo detection and recognition in videos [C27, C26, C25]. This tool has been used by the company for detecting the appearance of logos in hundreds of hours of broadcast videos to derive statistics for marketing analysis.

Publicly Available Datasets

Over the years, I have collected several datasets that are widely used by the academic community.

- **Stanford Drone Dataset**: *Aerial RGB videos + ground truth trajectories from multiple targets (pedestrians, bicyclist, skateboarders, carts, etc.) navigating an outdoor campus to learn all interactions between humans and their surrounding. This dataset is available on: http://cvgl.stanford.edu/projects/uav_data.*

- **MICC-CMFD Datasets:** We collected the first large-scale datasets for copy-move forgery detection, i.e. MICC-F200, MICC-F2000 and MICC-F600. Our datasets are widely used as benchmarks for CMFD algorithms. These datasets are available on: <http://www.lambertoballan.net/research/image-forensics>.
- **MICC-Flickr 101 Dataset:** We collected a novel image classification dataset from Flickr. It was conceived with the idea of cloning a reference benchmark as Caltech 101, but using realistic pictures from a social media. This dataset is available on: <https://www.micc.unifi.it/resources/datasets/micc-flickr101>.
- **MICC-Logos:** I collected a very challenging dataset for benchmarking logo recognition and trademark retrieval “in the wild”. This dataset has been collected during my visiting period at TELECOM ParisTech, and is available on: <http://www.lambertoballan.net/research/cdk-logo>.

Publications

Bibliometric indices

- *h*-index: 19 (Google Scholar), 17 (Scopus)
- Number of citations: 1440 (Google Scholar), 870 (Scopus)

Selected publications

These are the **key publications** that are selected to **represent my research** activities:

1. X. Li*, T. Uricchio*, **L. Ballan**, M. Bertini, C. Snoek, A. Del Bimbo. Socializing the semantic gap: A comparative survey on image tag assignment, refinement and retrieval. *ACM Computing Surveys*, 49(1):14:1–14:39, Jul 2016 (* equal contribution)
[DOI:10.1145/2906152 – IF:5.243, Class:1 – Cited by:30]
2. **L. Ballan**, F. Castaldo, A. Alahi, F. Palmieri, S. Savarese. Knowledge transfer for scene-specific motion prediction. *Proc. of European Conference on Computer Vision (ECCV)*, Amsterdam, Netherlands, 2016
[DOI:10.1007/978-3-319-46448-0_42 – Class:A*]
Press and media coverage: MIT Tech. Review, TechCrunch, ABC News, and BBC News (May–July 2016)
3. J. Johnson*, **L. Ballan***, L. Fei-Fei. Love Thy Neighbors: Image Annotation by Exploiting Image Metadata. *Proc. of IEEE International Conference on Computer Vision (ICCV)*, Santiago, Chile, 2015 (* equal contribution)
[DOI:10.1109/ICCV.2015.525 – Class:A* – Cited by:12]
4. **L. Ballan**, M. Bertini, G. Serra, A. Del Bimbo. A data-driven approach for tag refinement and localization in web videos. *Computer Vision and Image Understanding*, 140:58–67, Nov 2015
[DOI:10.1016/j.cviu.2015.05.009 – IF:2.134, Class:1 – Cited by:6]
5. H. Sahbi, **L. Ballan**, G. Serra, A. Del Bimbo. Context-dependent logo matching and recognition. *IEEE Transactions on Image Processing*, 22(3):1018–1031, Mar 2013
[DOI:10.1109/TIP.2012.2226046 – IF:3.111, Class:1 – Cited by:48]
6. **L. Ballan**, M. Bertini, A. Del Bimbo, L. Seidenari, G. Serra. Effective codebooks for human action representation and classification in unconstrained videos. *IEEE Transactions on Multimedia*, 14(4):1234–1245, Aug 2012
[DOI:10.1109/TMM.2012.2191268 – IF:2.536, Class:1 – Cited by:29]

7. I. Amerini, **L. Ballan**, R. Caldelli, A. Del Bimbo, G. Serra. A SIFT-based forensic method for copy-move attack detection and transformation recovery. *IEEE Transactions on Information Forensics and Security*, 6(3):1099–1110, Sep 2011
[DOI:10.1109/TIFS.2011.2129512 – IF:2.441, Class:1 – Cited by:315]
This is the 2nd most cited paper in IEEE-TIFS (published between 2011-2015) according to Scholar & Scopus Press and media coverage: “Ecco come si trucca un’immagine: l’esperto spiega il fotoritocco del Pulitzer”, Repubblica, Jan 2014 – “Cosi si trucca l’immagine”, Corriere della Sera, Jan 2014
8. **L. Ballan**, M. Bertini, A. Del Bimbo, L. Seidenari, and G. Serra. Event detection and recognition for semantic annotation of video. *Multimedia Tools and Applications*, 51(1):279–302, Jan 2011
(Special Issue on Multimedia Surveys by World Experts)
[DOI:10.1007/s11042-010-0643-7 – IF:1.331, Class:2 – Cited by:112]
This is the 5th most cited paper in MTAP (published between 2011-2015) according to Google Scholar

Full publications list

— Journal Articles —

- [A1] C. Rupprecht, A. Kapil, N. Liu, **L. Ballan**, and F. Tombari. Learning without prejudice: Avoiding bias in webly-supervised action recognition. *Computer Vision and Image Understanding*, in press, 2017. [IF:2.134, Class:1].
- [A2] T. Uricchio, **L. Ballan**, L. Seidenari, and A. Del Bimbo. Automatic image annotation via label transfer in the semantic space. *Pattern Recognition*, 71:144–157, Nov 2017. [DOI:10.1016/j.patcog.2017.05.019] [IF:3.399, Class:1].
- [A3] X. Li*, T. Uricchio*, **L. Ballan**, M. Bertini, C. Snoek, and A. Del Bimbo. Socializing the semantic gap: A comparative survey on image tag assignment, refinement and retrieval. *ACM Comp. Surveys*, 49(1):14:1–14:39, Jul 2016. (* equal contrib.) [DOI:10.1145/2906152] [IF:5.243, Class:1] [Cited by:30].
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