

OSWALD LANZ

CV – October 2021

Professor with fixed-term contract (*'Stiftungsprofessor'*, *'professore straordinario'*, since Oct 1, 2021).
Faculty of Computer Science, Free University of Bozen-Bolzano, Italy.

EDUCATION AND ACADEMIC QUALIFICATION

Habilitation to Full Professor, scientific sector: 09/H1 (Sistemi di elaborazione delle informazioni).

PhD in Information and Communication Technology, from the ICT International Doctoral School of the University of Trento.

Degree (laurea) in Mathematics, from the University of Trento.

APPOINTMENTS AND PROFESSIONAL EXPERIENCE

Research Director (since Nov 2019) at Covision Lab, Brixen-Bressanone, Italy.

Expert Researcher (Jul 2016 – Sep 2021, on leave since Oct 2021) at the Digital Industry Center of Fondazione Bruno Kessler, Trento, Italy.

Head of Research and Development (Nov 2015 – Jun 2016) at DIVUS GmbH, Appiano-Eppan, Italy.
Business sector: Industry and Building Automation.

Head of Research Unit (Jan 2012 – Jun 2016, on leave Nov 2015 – Jun 2016) at the Center for Information and Communication Technology of Fondazione Bruno Kessler, Trento, Italy.

Researcher (Jan 2007 – Dec 2011) at the Center for Information and Communication Technology of Fondazione Bruno Kessler, Trento, Italy.

Researcher with fixed term contract (Jan 2005 – Dec 2006) at the Istituto per la Ricerca Scientifica ITC-IRST, Trento, Italy.

Visiting Researcher (Jan 2004 – Apr 2004) at the Computer Vision Lab of Baskin School of Engineering, UCSC, CA.

Software Developer, Teaching Assistant (Mar 2000 – Dec 2001) at the CUDAM Centre of Excellence, University of Trento, Trento, Italy.

AWARDS AND PRIZES

Amazon Machine Learning Research Award (AWS MLRA) associated with a research program on Structured Representation Learning for Video Understanding.

Competition 3rd Place Video Action Recognition at the International Conference on Computer Vision and Pattern Recognition (CVPR) 2019-2021 EPIC-Kitchens Challenges.

Best Paper award at the ACM MultiMedia Conference 2015, for the paper *Analyzing Free-standing Conversational Groups: A Multimodal Approach*.

Best Student Paper award at the International Conference on Image Analysis and Processing 2007, for the paper *An information theoretic rule for sample size adaptation in particle filtering*.

Competition 1st Place 3D Person Tracking at the CLEAR International Evaluation on Classification of Events, Activities and Relationships 2006.

Best IST Exhibit award at the Information Society Technologies Conference 2006, with live visitor tracking demonstrator at the European Project "Computers in the Human Interaction Loop" exhibition booth.

INVITED TALKS AND SEMINARS

Invited Speaker at the 5th International Workshop on Egocentric Perception, Interaction and Computing of the International Conference on Computer Vision (ICCV) 2019, Seoul, Korea.

Invited Speaker at the Mathematics for Computer Vision Workshop (MCV) 2018. Title of presentation: *Learning to Track*.

Keynote Speaker at the Innovations in 3D Measurement, Modeling and Visualization Workshop (ARIDA) 2008. Title of presentation: *Probabilistic People Tracking using Passive Vision*.

Invited Seminars: University of Siena, *Learning to Recognize Actions in Videos*, Jul 25, 2019; Fondazione Bruno Kessler (FBK), *Learning to Recognize Actions in Videos*, Jun 13, 2019 (Part of 'Spring of Artificial Intelligence Seminar Series'); Free University of Bozen-Bolzano, *Looking at People*, May 7, 2018 (Faculty Seminar); Italian Institute of Technology (IIT), *Vision-based People Tracking under Occlusion and Ambiguity*, Sep 1, 2009; University of Modena and Reggio Emilia, *Vision-based People Tracking under Occlusion and Ambiguity*, Sep 18, 2008; University of Verona, *Hybrid Joint-Separable Multibody Tracking*, Sep 25, 2007; University of California at Santa Cruz (UCSC), *An Approximate Bayesian Approach to Marry Efficiency and Robustness*, May 22, 2007.

PHD SUPERVISION AND BOARDS

Supervisor (2015 – 2019) on the topic video action recognition, at the ICT International Doctoral School of the University of Trento. Now at Samsung AI Cambridge.

Co-Supervisor (2015 – 2019) on the topic localization, mapping and object tracking in mobile smart camera networks, at the School of Electronic Engineering and Computer Science of Queen Mary University of London. Now at Queen Mary University of London.

Co-Supervisor (since Nov 2017) on the topic novel-view human motion synthesis, at the School of Electronic Engineering and Computer Science of Queen Mary University of London.

Supervisor (since Nov 2019) on the topic video retrieval and question answering, at the University of Udine.

Tutor (2011 – 2015) on the topic distributed and adaptive visual tracking, at the ICT International Doctoral School of the University of Trento. Now at Siemens China.

Tutor (2010 – 2015) on the topic visual people tracking in dynamic environment, at the ICT International Doctoral School of the University of Trento. Now at Imaginarium Studios, University of Bath.

Member of PhD Board (since 2017) of the PhD program in Computer Science, Mathematics and Physics at the University of Udine.

Adjunct Member (since 2013) of the ICT International Doctoral School in Information and Communication Technology at the University of Trento.

Member of the Examination Committee (2019) for the award of the PhD degree with thesis title 'Learning in Low Data Regimes for Image and Video Understanding', at the ICT International Doctoral School of the University of Trento.

Member of the Examination Committee (2018) for the award of the PhD degree with thesis title 'Efficient and Effective Solutions for Video Classification', at the ICT International Doctoral School of the University of Trento.

Member of Doctoral Consortium (2018) of the International Conference of the Italian Association for Artificial Intelligence (AI*IA)

SERVICE TO THE SCIENTIFIC COMMUNITY

Workshop Co-Organizer 'Image and Video Question Answering' at the International Conference on Pattern Recognition (ICPR) 2020.

General Co-Chair of the International Conference on Image Analysis and Processing (ICIAP) 2019.

Special Session Co-Organizer at the ACM/IEEE International Conference on Distributed Smart Cameras (ICDSC) 2014.

Local Co-Chair of the International Workshop on Artificial Neural Networks in Pattern Recognition (ANNPR) 2012.

Program Committee and Reviewing: International Joint Conference on Artificial Intelligence (IJCAI, Senior Program Committee member), International Conference on Computer Vision and Pattern Recognition (CVPR), International Conference on Computer Vision (ICCV), International Conference on Learning Representations (ICLR), Conference on Artificial Intelligence (AAAI), European Conference on Computer Vision (ECCV), British Machine Vision Conference (BMVC), International Conference on Distributed Smart Cameras (ICDSC), Visual Object Tracking Challenge (VOT Challenge), International Conference on Multimedia (ACMMM), International Conference on Advanced Video and Signal-based Surveillance (AVSS), International Workshop on Artificial Neural Networks in Pattern Recognition (ANNPR), European Signal Processing Conference (EUSIPCO), Workshop on Pattern Recognition and Artificial Intelligence for Human Behaviour Analysis (PRAI*HBA).

Journal Referee: IEEE Transactions on Pattern Analysis and Machine Intelligence (ISSN:0162-8828), IEEE Transactions on Neural Networks and Learning Systems (ISSN:2162-237X), IEEE Transactions on Systems, Man and Cybernetics (ISSN:2168-2216), IEEE Transactions on Image Processing (ISSN:1057-7149), IEEE Transactions on Signal Processing (ISSN:1053-587X), IEEE Transactions on Multimedia (ISSN:1520-9210), IEEE Transactions on Circuits and Systems for Video Technology (ISSN:1051-8215), Computer Vision and Image Understanding (ISSN:1077-3142), Image and Vision Computing (ISSN: 0262-8856), ACM Transactions on Multimedia Computing, Communications and Applications (ISSN:1551-6857), Sensors (ISSN:1424-8220), ACM Transactions on Autonomous and Adaptive Systems (ISSN:1556-4665), Machine Vision and Applications (ISSN:0932-8092).

Associate Editor of IET Computer Vision (ISSN:1751-9632).

Guest Editorial Board of ECMLPKDD journal track, Data Mining and Knowledge Discovery Journal (ISSN:1384-5810).

Independent Expert for the evaluation of research project proposals for *CHIST-ERA - European Coordinated Research on Long-term Challenges in Information and Communication Sciences & Technologies* and *NWO - The Netherlands Organisation for Scientific Research*.

PATENTS

US 7,965,86 granted 21-06-2011: 'Method and apparatus for tracking a number of objects or object parts in image sequences'.

EU 2302589 granted 05-12-2012: 'Method for efficient target detection from images robust to occlusion'.

US 8,436,913 granted 07-05-2013: 'Method for efficient target detection from images robust to occlusion'.

EU 1879149 granted 16-03-2016: 'Method and apparatus for tracking a number of objects or object parts in image sequences'.

SELECTED PUBLICATIONS

[01] Swathikiran Sudhakaran, Sergio Escalera, and Oswald Lanz. Learning to Recognize Actions on Objects in Egocentric Video with Attention Dictionaries. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 2021.

[02] Xinyuan Qian, Alessio Brutti, Oswald Lanz, Maurizio Omologo, and Andrea Cavallaro. Audio-Visual Tracking of Concurrent Speakers. *IEEE Transactions on Multimedia*, 2021.

[03] Swathikiran Sudhakaran, Sergio Escalera, and Oswald Lanz. Gate-Shift Networks for Video Action Recognition. In *CVPR*, 2020.

[04] Alessio Xompero, Oswald Lanz, and Andrea Cavallaro. A Spatio-Temporal Multi-Scale Binary Descriptor. *IEEE Transactions on Image Processing*, vol. 29, pp. 4362-4375, 2020.

- [05] Swathikiran Sudhakaran, Sergio Escalera, and Oswald Lanz. LSTA: Long Short-Term Attention for Egocentric Action Recognition. In *CVPR*, 2019.
- [06] Mohamed Ilyes Lakhhal, Oswald Lanz, and Andrea Cavallaro. View-LSTM: Novel-View Video Synthesis Through View Decomposition. In *ICCV*, 2019.
- [07] Xinyuan Qian, Alessio Brutti, Oswald Lanz, Maurizio Omologo, and Andrea Cavallaro. Multi-Speaker Tracking from an Audio-Visual Sensing Device. *IEEE Transactions on Multimedia*, 2019.
- [08] Jagannadan Varadarajan, Ramanathan Subramanian, Samuel Rota Bulò, Narendra Ahuja, Oswald Lanz, and Elisa Ricci. Joint Estimation of Human Pose and Conversational Groups from Social Scenes. *International Journal of Computer Vision*, 126(2-4):410–429, 2018.
- [09] Swathikiran Sudhakaran and Oswald Lanz. Learning to Detect Violent Videos Using Convolutional Long Short-Term Memory. In *AVSS*, 2017.
- [10] Yan Yan, Elisa Ricci, Ramanathan Subramanian, Gaowen Liu, Oswald Lanz, and Nicu Sebe. A Multi-Task Learning Framework for Head Pose Estimation under Target Motion. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 38(6):1070–1083, 2016.
- [11] Xavier Alameda-Pineda, Jacopo Staiano, Ramanathan Subramanian, Ligia Maria Batrinca, Elisa Ricci, Bruno Lepri, Oswald Lanz, and Nicu Sebe. SALSA: A Novel Dataset for Multimodal Group Behavior Analysis. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 38(8):1707–1720, 2016.
- [12] Elisa Ricci, Jagannadan Varadarajan, Ramanathan Subramanian, Samuel Rota Bulò, Narendra Ahuja, and Oswald Lanz. Uncovering Interactions and Interactors: Joint Estimation of Head, Body Orientation and f-Formations from Surveillance Videos. In *ICCV*, 2015.
- [13] Xavier Alameda-Pineda, Yan Yan, Elisa Ricci, Oswald Lanz, and Nicu Sebe. Analyzing Free-Standing Conversational Groups: A Multimodal Approach. In *ACM Multimedia*, 2015.
- [14] Tao Hu, Stefano Messelodi, and Oswald Lanz. Dynamic Task Decomposition for Decentralized Object Tracking in Complex Scenes. *Computer Vision and Image Understanding*, 134:89–104, 2015.
- [15] Anoop Kolar Rajagopal, Subramanian Ramanathan, Elisa Ricci, Radu L. Vieri, Oswald Lanz, Kalpathi Ramakrishnan, and Nicu Sebe. Exploring Transfer Learning Approaches for Head Pose Classification from Multi-View Surveillance Images. *International Journal of Computer Vision*, 109(1-2):146–167, 2014.
- [16] Yan Yan, Elisa Ricci, Subramanian Ramanathan, Oswald Lanz, and Nicu Sebe. No Matter Where You Are: Flexible Graph-Guided Multi-Task Learning for Multi-View Head Pose Classification under Target Motion. In *ICCV*, 2013.
- [17] Gloria Zen, Bruno Lepri, Elisa Ricci, and Oswald Lanz. Space Speaks: Towards Socially and Personality Aware Visual Surveillance. In *ACM Multimedia Workshops*, 2010.
- [18] Oswald Lanz. An Information Theoretic Rule for Sample Size Adaptation in Particle Filtering. In *ICIAP*, 2007.
- [18] Oswald Lanz. Approximate Bayesian Multibody Tracking. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 28(9):1436–1449, 2006.
- [20] Oswald Lanz and Roberto Manduchi. Hybrid Joint-Separable Multibody Tracking. In *CVPR*, 2005.