University Academic Curriculum Vitae

Personal information

Name:	Oswald Lanz
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Project webpage:	https://vision.projects.unibz.it/

Present appointment

Full Professor (Computer Vision), Faculty of Engineering, Free University of Bozen-Bolzano.
Scientific sector: IINF-05/A (Sistemi di Elaborazione delle Informazioni).
Start of appointment: Oct 1, 2024.

Main responsibilities:

- Director, PhD in Computer Science.
  https://www.unibz.it/en/faculties/engineering/phd-computer-science
- Head, Visual Computing Lab (VCL) research group.
  https://vision.projects.unibz.it/
- Head, X-ray Computed Tomography Laboratory (XCT-Lab) research initiative.
  https://xct.projects.unibz.it/

Previous appointment

Endowed Professor (Professore straordinario - Stiftungsprofessor, Computer Vision and Deep Learning; Full Professor level) at the Faculty of Engineering, Free University of Bozen-Bolzano
Scientific sector: ING-INF/05 (Sistemi di Elaborazione delle Informazioni).
Term of appointment: Oct 1, 2021 till Sep 30, 2024.

Main responsibilities:

- Professorship co-funded by Covision Lab, a consortium backed by seven technology companies with R&D lab developing industrial applications in the field of computer vision. Duties and contributions: building the lab from its inception, shaping research and development priorities, hiring processes, overseeing the research heavy developments, organizing joint seminars and paper reading sessions, proposal writing for public financial support 'development of innovation hub', interacting with the CEO, CTO and the board of directors on strategic decisions.
  https://www.covisionlab.com/en/research
- Founder and Head professor of the Vision Computing and Learning (VCL) research group.
  https://vision.projects.unibz.it/
- Member of the Course Council of the Bachelor in Electronics and Cyber-Physical Systems Engineering, of the Scientific Committee of the PhD in Computer Science, of the Faculty Council and the Third Mission board of the Faculty of Engineering.

Professional experience

From/to	Job title/level	Name of academic institution	Responsibilities
03/96–08/99	High School Teacher	Realgymnasium ”R. v. Klebelsberg”, Bolzano	Teaching Mathematics, Physics, Informatics (in German).
09/99–08/00	High School Teacher	Lehranstalt fuer Wirtschaft und Soziales, Bolzano	Teaching Mathematics (in German).
03/00–12/01	Scientific collaborator	CUDAM Centre of Excellence, Department of Civil Environmental and Mechanical Engineering, University of Trento	Research and teaching software development, teaching assistant.
01/02–12/05	Teaching assistant	Department of Mathematics, Physics, and Natural Sciences, Department of Civil, Environmental, and Mechanical Engineering, University of Trento	Teaching assistant for various numerical analysis courses at Mathematics and Engineering degrees.
01/02–12/04	Project PhD researcher	ITC-Irst research institute, Trento	People tracking in Museum spaces, Research and technology demonstrator development.
01/04–04/04	Visiting researcher	School of Engineering, University of California at Santa Cruz (UCSC)	Research on occlusion robust multiple people tracking.
03/05–12/06	Researcher with fixed term contract	ITC-Irst research institute, Trento	EU Project researcher on audio-visual tracking and head pose estimation, technology demonstrator development.
01/07–09/21	Permanent researcher	Fondazione Bruno Kessler (FBK), Trento	Research on multi-camera tracking and action recognition, technology maturation and patenting, PhD co-supervision, project workpackage leader, PI of internal collaborative project.
01/12–06/16 (on leave 11/15–06/16)	Head of Research Unit	Fondazione Bruno Kessler (FBK), Trento	Head of ”Technologies of Vision” research unit (10–13 researchers and technologists), annual activity and budget planning, evaluation and hiring of staff, member of the research board, adjunct member of PhD board at University of Trento.
11/15–06/16	Head of R&D	DIVUS GmbH, Appiano-Eppan	Business sector: Industry and Building Automation. Independent R&D that led to a new product, a smart switch for the home automation market.

07/16–10/21	Expert researcher	Fondazione Bruno Kessler (FBK), Trento	Independent research in computer vision and deep learning, co-supervision of PhD students at Queen Mary University of London, Member of the PhD board in Computer Science, Mathematics and Physics of the University of Udine.
10/19–10/21	Scientific consultant	Covision Lab, Bressanone-Brixen	PI of consultancy contracts between the Fondazione Bruno Kessler (FBK Trento) and Covision Lab to start-up Covision Lab, including support in the definition of research priorities and projects.

Education and qualification

- **Degree (diploma di laurea) in Mathematics**
  University of Trento, Faculty of Mathematics, Physics and Natural Sciences
  Thesis topic: Numerical methods for shallow water equations
  Graduation date: Mar 28, 2000
- **PhD in Information and Communication Technology**
  University of Trento, ICT International Doctoral School
  Title of Dissertation: Probabilistic Multi-Person Tracking for Ambient Intelligence
  Graduation date: Feb 14, 2005
- **National Scientific Qualification to Full Professor**
  Scientific sector: ING-INF/05 (Sistemi di Elaborazione delle Informazioni)
  Obtained Jul 26, 2018 – ASN 2016, Sessione 5, Settore concorsuale 09/H1.

Experience in academic teaching

Courses given in the last five years

- **Computer Vision (6 CFU, 2025/26)**
  Master in Computing for Data Science (LM-18)
  Lecturing hours: 40, lab hours: 20
  Scientific sector: ING-INF/05
  Syllabus: at this link
- **Deep Learning (6 CFU, 2025/26)**
  Master in Computing for Data Science (LM-18)
  Lecturing hours: 40, lab hours: 20
  Scientific sector: ING-INF/05
  Syllabus: at this link
- **Artificial Intelligence and Machine Learning (9 CFU, 2025/26)**
  Master in Smart Technologies for Sports and Health (LM-32)
  Lecturing hours: 10, lab hours: 5
  Scientific sector: ING-INF/05
  Syllabus: at this link

- **Artificial Intelligence and Machine Learning (9 CFU, 2025/26)**
  Bachelor in Electronic and Information Engineering (L-8)
  Lecturing hours: 20, lab hours: 10
  Scientific sector: ING-INF/05
  Syllabus: at this link

- **Deep Learning (6 CFU, 2024/25)**
  Master in Computing for Data Science (LM-18)
  Lecturing hours: 40, lab hours: 20
  Scientific sector: ING-INF/05
  Syllabus: at this link

- **Artificial Intelligence and Machine Learning (9 CFU, 2024/25)**
  Bachelor in Electronic and Information Engineering (L-8)
  Lecturing hours: 54
  Scientific sector: ING-INF/05
  Syllabus: at this link

- **Algorithms and Programming (6 CFU, 2024/25)**
  Bachelor in Electronic and Information Engineering (L-8)
  Lab hours: 20 (Lectures loaned from L-31)
  Scientific sector: ING-INF/05
  Syllabus: at this link

- **Deep Learning (6 CFU, 2023/24)**
  Master in Computing for Data Science (LM-18)
  Lecturing hours: 40, lab hours: 20
  Scientific sector: ING-INF/05
  Syllabus: at this link

- **Introduction to Analysis and Optimization Techniques (6 CFU, 2023/24)**
  Bachelor in Informatics and Management of Digital Business (L-31)
  Lecturing hours: 40, exercises hours: 20
  Scientific sector: MAT/05
  Syllabus: at this link

- **Algorithms and Programming (6 CFU, 2023/24)**
  Bachelor in Electronics and Cyber-Physical Systems Engineering (L-8)
  Lab hours: 20 (Lectures loaned from L-31)
  Scientific sector: ING-INF/05
  Syllabus: at this link

- **Deep Learning (6 CFU, 2022/23)**
  Master in Computational Data Science (LM-18)
  Lecturing hours: 40, Lab hours: 20
  Scientific sector: ING-INF/05
  Syllabus: at this link

- **Introduction to Analysis and Optimization Techniques (6 CFU, 2022/23)**
  Bachelor in Informatics and Management of Digital Business (L-31)
  Lecturing hours: 40, Lab hours: 20
  Scientific sector: MAT/05
  Syllabus: at this link.

- **Data Curation - Data Profiling (6 CFU, 2021/22)**
  Master in Computational Data Science (LM-18)
  Lecturing hours: 40, Lab hours: 20
  Scientific sector: ING-INF/05
  Syllabus: at this link

- **Introduction to Analysis and Optimization Techniques (6 CFU, 2021/22)**
  Bachelor in Informatics and Management of Digital Business (L-31)
  Lecturing hours: 40, Lab hours: 20
  Scientific sector: MAT/05
  Syllabus: at this link

- **Probability Theory and Statistics (6 CFU, 2021/22)**
  Bachelor in Computer Science (L-31)
  Exercises hours: 20
  Scientific sector: MAT/06
  Syllabus: at this link

- **Probability Theory and Statistics (6 CFU, 2021/22)**
  Bachelor in Informatics and Management of Digital Business (L-31)
  Exercises hours: 20
  Scientific sector: MAT/06
  Syllabus: at this link

- **Lecture: From Action Recognition to Action Anticipation**
  VISMAC International Summer School on Machine Vision, Padova, Sep 2023.
  Website: `https://vismac23.github.io/`

Additional teaching experience

- More than 3.5 years of teaching experience in **Mathematics, Physics and Informatics (in German)** at Realgymnasium "Raimund von Klebelsberg", Bozen-Bolzano, Italy. From Feb 01, 1996 – Jun 30, 1999.

- Additional 1 years of teaching experience in **Mathematics (in German)** at Sozialwissenschaftliches Gymnasium, Bozen-Bolzano, Italy. From Sep 01, 1999 – Jun 30, 2000.

- Extensive experience as teaching assistant in **Numerical Analysis** courses at the Bachelor in Civil Engineering, Bachelor in Industrial Engineering, Bachelor in Telecommunication Engineering, Degree in Mathematics, Degree in Computer Science at the University of Trento, totalling 312 contract hours between 2000 and 2006.

Postgraduate supervision (past five years)

- Supervisor of V. N., PhD in Computer Science - since 11/2025. Topic: "Physics Augmented Space-Time Computed Tomography".

- Supervisor of A. M., PhD in Computer Science - since 11/2024. Topic: "Anomaly Detection and Segmentation in X-ray CT Scans". Co-funded by Microtec.

- Supervisor of A. S., PhD in Advanced-Systems Engineering - since 11/2024. Topic: "Leveraging Digital Twins for Improved Flexibility and Computer Vision in Packaging of Food Manufacturing". Funded by Loacker.

- Supervisor of E. B., PhD in Computer Science - since 11/2023. Topic: "Language Augmented Multimodal Proficiency Estimation in Human Activities".
- Supervisor of S. C., PhD in Computer Science - since 11/2022. Topic: "Designing Task-Aware and Domain Adaptive Neural Architectures: from Neural Architecture Search to Structural Modeling across Shifts, Constrains, and Modalities".
- Supervisor of E. C., PhD in Advances-Systems Engineering - since 11/2022. Topic: "Automating Visual Inspection and Creating Parts' Digital Twins". Funded by Schaeffler Group.
- Supervisor of T-M. T., PhD in Computer Science - since 11/2021. Topic: "Video Action Anticipation".
- Supervisor of C-I. U., PhD in Advances-Systems Engineering - 01/2022-04/2025. PhD Thesis title: "Unsupervised Anomaly Detection for Industrial Quality Control". Co-funded by Covision Lab.
- Supervisor of A. F., PhD in Computer Science, Mathematics and Physics, University of Udine - 11/2019–03/2023. PhD Thesis title: "Semantics for Vision-and-Language Understanding".
- Co-Supervisor of M-I. L., School of Electronic Engineering and Computer Science, Queen Mary University of London - 11/2017–04/2022. PhD Thesis title: "Modality-Based Multi-View Indoor Video Synthesis". Co-funded by Fondazione Bruno Kessler (FBK, Trento).
- Supervisor of S. S., ICT International Doctoral School of the University of Trento - 11/2015–06/2019. PhD Thesis title: "Deep Neural Architectures for Video Representation Learning".
- Co-Supervisor of A. X., School of Electronic Engineering and Computer Science, Queen Mary University of London - 11/2015–09/2020. PhD Thesis title: "Local Features for View Matching Across Independently Moving Cameras". Co-funded by Fondazione Bruno Kessler (FBK).

MSc and BSc Theses supervision (past five years)

- Thesis Supervisor of A. M., Master in Computational Data Science - Oct 2024. Thesis title: "Fine-Grained Action Recognition in Egocentric Videos", Oct 2024. Work led to a first rank at an international competition, see `https://egovis.github.io/cvpr24/#winners`
- Thesis Supervisor of J. R., Master in Computational Data Science - Mar 2024. Thesis title: "Improving Semantic Segmentation Models through Synthetic Data Generation via Diffusion Models". Work led to a workshop paper at top-tier conference ICLR'24.
- Thesis Supervisor of A. S., Master in Computational Data Science - Mar 2024. Thesis title: "Automated Evaluation and Classification of Fat Bloom on Chocolate Surfaces using Image Processing Algorithms and Machine Learning Techniques."
- Thesis Supervisor of T-R. A., Master in Computational Data Science - Mar 2024. Thesis title: "Utilizing Multi-Modal Data for Human Action Recognition Tasks".
- Thesis Supervisor of A. T., Master in Computational Data Science - Jul 2024. Thesis title: "Foundation Models applied to Depth Estimation for SLAM problem", 26.07.2024. Work developed with internship at Covision Lab.
- Thesis Supervisor of M-J. H., Master in Computational Data Science - Oct 2024. Thesis title: "Evaluation of Action Recognition Architectures for a Production Environment by the example of Krone GmbH & Co", Oct 2024.

- Thesis Supervisor of E. B., Master in Computational Data Science - Sep 2023. Thesis title: "Human Action Recognition from Egocentric Video", Sep 2023. Work led to a second rank at a international competition, see https://iplab.dmi.unict.it/MECCANO/challenge.html.
- Thesis Supervisor of S. M., Bachelor in Computer Science - Jul 2025. Thesis title: "Advanced 3D Scene Reconstruction using Structure from Motion with Multi View Stereo, Neural Radiance Fields and SLAM-Based Mapping".
- Thesis Supervisor of J. G., Bachelor in Informatics and Management of Digital Business - Mar 2024. Thesis title: "Retrieval-Augmented Generation Chatbot: Proof-of-Concept Implementation for Customer Service at Durst Group AG". Work developed with internship at Durst.
- Thesis Supervisor of J. F., Bachelor in Informatics and Management of Digital Business - Mar 2024. Thesis title: "Performance Disparities and Improvement Strategies in Industrial Anomaly Detection: A Comparative Study using MVTec and Real-World Data".
- Thesis Supervisor of S. C., Bachelor in Informatics and Management of Digital Business - Mar 2023. Thesis title: "Real Time Human 3D Pose Tracking by Fusing Egocentric and Exocentric Video Streams".

Other academic responsibilities

Additional institutional responsibilities

- Member of PhD board (collegio dei docenti) of the PhD program in Computer Science, Mathematics and Physics at the University of Udine. May 2017 – Nov 2021.
- Adjunct Member of the ICT International Doctoral School in Information and Communication Technology at the University of Trento. Oct 2013 – Mar 2020.
- Member of the Mentoring Board of the Doctoral Consortium of the International Conference of the Italian Association for Artificial Intelligence (AI*IA), 2024.
- Member of the Program Committee at the Doctoral Consortium of the International Conference of the Italian Association for Artificial Intelligence (AI*IA), 2018.
- Member of the Research Board at the Center of Information and Communication Technology of Fondazione Bruno Kessler. Jan 2012 – Dec 2017.
- Head of Research Unit "Technologies of Vision", Center of Information and Communication Technology, Fondazione Bruno Kessler. Jan 2012 – Jun 2016 (on leave Nov 2015 – Jun 2016).

Organizational responsibilities

- Co-Director of ELIAS-ELLIS-VISMAC Winter School on Computer Vision and Multimodal Learning, NOI Techpark Bruneck-Brunico (Italy), Jan 27-31, 2025. https://elias-ai.eu/event/ellis-vismac/
- Co-Organizer of VIQA - International Workshop on Video and Image Question Answering of the International Conference on Pattern Recognition (ICPR 2020), Virtual Milan, Italy, 2021. https://sites.google.com/view/viqa2020/
- General Co-Chair of the International Conference on Image Analysis and Processing (ICIAP), Trento, Italy, 2019. https://event.unitn.it/iciap2019/

- Special Session Co-Organizer at the ACM/IEEE International Conference on Distributed Smart Cameras (ICDSC), Venezia, 2014.
  `http://imagelab.ing.unimore.it/icdsc14/`
- Local Co-Chair of the International Workshop on Artificial Neural Networks in Pattern Recognition (ANNPR), Trento, 2012.
- Tutorial Co-Organizer of "Audio-Video Based Person Tracking" tutorial at the International Conference on Multimodal Interfaces (ICMI), Trento, 2005.

Research and scholarships

Summary of Research and Scholarships (past five years)

Project name	Period	Funding	Funding agency	Role
XCT-LAB	01/2026–12/2028	1,868,247	ERDF 2021–2027	PI
5VREAL	10/2023–10/2024	1,242,498	MIMIT FSC 2014-2020	PI
SRL4V	04/2022–09/2024	70,000	UNIBZ Startup Grant	PI
AISEE	12/2023–12/2024	175,000	UNIBZ call Infra2023	PI
POS-T2-STROKE	02/2023–02/2027	*n.a.*	MSAL FSC 2014-2020	CI
ROBOASSIST	05/2024–08/2025	220,000	SMACT call IRISS	CI
CHROC	07/2024–12/2025	63,886	UNIBZ call Infra2024	CI
REMANUFACTURING	02/2023–05/2024	70,000	Stiftung Sparkasse	CI
AI-LAB	01/2024–12/2026	1,008,434	ERDF 2021–2027	C
HIPPA	12/2023–11/2026	564,637	ERDF 2021–2027	C
PNRR ONFOODS	11/2022–10/2025	AR position	Ministerial funding	C
PNRR INEST	09/2022–08/2025	AR position	Ministerial funding	C

PI stands for principal investigator CI stands for co-investigator C stands for contributor.

Short Project Description

Project XCT-LAB – X-ray Computed Tomography Research Laboratory
Period: 01/2024–12/2026
Funding: 1.868.247 Euro, ERDF 2021–2027
Role: Principal investigator
Objectives: XCT-Lab offers enabling infrastructure and research in computer vision and physics-informed machine learning, to lay out the foundations of next-generation 3-D X-ray CT technology for inline quality control of plastic, steel and metal alloy parts.
Partners: D2AI (Data-driven Artificial Intelligence) and IEA (Industrial Engineering and Automation) macro-areas of the Faculty of Engineering in synergy with the Materials Characterization Lab and the Artificial Intelligence Lab of UNIBZ.

Project 5VREAL – 5G Volley Reality Experience and Analytics Live

Period: 10/2023–10/2024

Funding: 1.242.498 Euro, MIMIT - Italian Ministry of Enterprises and Made in Italy

Role: Principal investigator, project coordinator

Objectives: Develop video analytics algorithms for the analysis of team sports, specifically Volley, including algorithms for 3D ball tracking and player tracking, event detection and classification, and tactic pattern recognition. Developed AI components will be integrated with Edge Computing and 5G technology and deployed to realize "Engagement" use case, to enrich user experience during broadcasting, and "Coach" use case, to support the technical staff of teams in performance analysis and decision making with AI tools.

Partners: UNIBZ (capofila - lead), Vodafone, FBK, Euro Media Group, Small Pixels.

Project SRL4V – Structured Representation Learning for Vision

Period: 04/2022–09/2024

Funding: 70.000 Euro, UNIBZ Startup Grant

Role: Principal investigator

Objectives: This grant is to invest in the start-up of a computer vision research group at unibz. The main objective is to build a team of researchers and PhD students that advances image and video representation learning research addressing various relevant applications, and that also pairs research efforts of Covision Lab to fill the gap when deploying academic research results to industrial use cases. Covision Lab is the company co-funding the endowed professorship of the PI.

Partners: https://vision.projects.unibz.it

Project AISEE – AI Server and Inference Boards for Data-driven AI Model Development and Deployment

Period: 12/2023–12/2024

Funding: 175.000 Euro, UNIBZ call Infra2023

Role: Principal investigator

Objectives: To invest in computational resources, in the form of a GPU server, to support resource-heavy AI model development by PhD students and researchers in the D2AI, KRDB and HCIS macro-areas of the Faculty of Engineering at unibz. Select, purchase and coordinate usage of the GPU server based on research priorities.

Partners: D2AI (Data-driven Artificial Intelligence), KRDB (Knowledge and Data) and HCIS (Human-centered Intelligent Systems) macro-areas of the Faculty of Engineering at UNIBZ.

Project POS-T2-STROKE – Early Diagnosis of Acute Cerebral Stroke

Period: 10/2023–10/2024

Funding: MSAL - Italian Ministry of Health

Role: Co-investigator

Objectives: The POS-T2-Stroke project aims to develop and validate a new low-field MRI apparatus and a clinical protocol for the early diagnosis of acute cerebral stroke, using advanced AI techniques to reduce diagnosis time and improve sensitivity and specificity.

Partners: Università degli Studi dell'Aquila (capofila - lead), ASL1 Abruzzo, ASL2 Abruzzo, IRCCS Humanitas, Università Politecnica delle Marche, UNIBZ, Università di Cassino, Policlinico di Messina.

Project ROBOASSIST – Robot-assisted Assembling and Disassembling of Color Bars
Period: 05/2024–08/2025
Funding: 220.000 Euro, SMACT call IRISS
Role: Co-investigator
Objectives: Developing a robot-assisted remanufacturing system for the assembly and disassembly of components such as color bars, where a full automation is not possible. We aim for researching methods to model the task of remanufacturing by studying the assembly/disassembly process of a product and to develop methods for robot-assisted assembly/disassembly by combining methods of high-end computer vision with optimal, dynamic robot task planning and task allocation as well as safe motion planning.
Partners: UNIBZ and Durst AG.

Project CHROC – Station for Studying Context-aware Human-Robot Collaboration
Period: 07/2024–12/2025
Funding: 63.886 Euro, UNIBZ call Infra2024
Role: Co-investigator
Objectives: To invest in equipment to infrastructure a station for studying context-aware human-robot collaboration, including vision system, sensored glasses, gloves and suits, and robotic platform.

Project AI-LAB – Artificial Intelligence Laboratory
Period: 01/2024–12/2026
Funding: 1.008.434 Euro, ERDF 2021–2027
Role: Contributor
Objectives: Establishing an Artificial Intelligence Laboratory (AI-Lab) at NOI Techpark to aggregate the existing academic expertise in AI methodologies at unibz (notably data science, data management, data and process mining, machine learning and computer vision, logic-based and semantic methods) and to bridge the gap between academic excellence and the needs of the local industry, services, and public administration. The AI-Lab is mainly developed around a multifunctional laboratory, equipped with state-of-the-art computing infrastructure, and will serve as research and development facility for AI-based solutions, as AI technology demonstration facility, and as a hands-on training centre.

Project HIPPA – Hyperspectral Imaging for the Detection of Physiologically and Parasitically Induced Damages on Apple Fruit at Harvest and During Postharvest
Period: 12/2023–11/2026
Funding: 564.637 Euro, ERDF 2021–2027
Role: Contributor and AR co-supervisor
Objectives: Development of methods for the detection of physiologically and parasitically induced damages on apple fruit at harvest and during postharvest using hyperspectral imaging.
Partners: UNIBZ (lead), Versuchszentrum Laimburg, EURAC, MiCROTEC

Project PNRR ONFOODS – Research and Innovation Network on Food and Nutrition Sustainability, Safety and Security
Period: 11/2022–10/2025
Funding: 1 AR position (FTE: 36 months), PNRR Ministerial funding
Role: Contributor and AR supervisor
Objectives: Goal includes development of novel machine learning based algorithms for 3-D X-ray food inspection.
Partners: Large consortium, see `onfoods.it`

Project PNRR INEST – Interconnected Nord-Est Innovation Ecosystem
Period: 09/2022–08/2025
Funding: 1 AR position (FTE: 36 months), PNRR Ministerial funding
Role: Contributor and AR supervisor
Objectives: Development of a perception toolbox for mobile machinery based on computer vision and multi-sensory fusion, collaborating with an industrial partner to reach appropriate technology readiness level in a second step.
Partners: Large consortium, see `onfoods.it`

Project REMANUFACTURING – Robot-assisted Assembling and Disassembling to facilitate Remanufacturing and Product Reuse
Period: 02/2023–05/2024
Funding: 70.000 Euro, Stiftung Suedtiroler Sparkasse
Role: Co-investigator
Objectives: Research project on robot-assisted remanufacturing addressing uncertainty in product condition and high product variability. The work focuses on developing robotic perception and decision-making methods to support efficient remanufacturing processes with reduced labor requirements, without full automation.
Partners: UNIBZ and Durst AG.

Summary of significant achievements in research and scholarship

Early in my career, I have achieved:

- **Oral presentation at CVPR**, the most prestigious and selective conference of the field, with an oral acceptance rate of 6%; CVPR is currently ranked 2nd among all publication venues according to google metrics[a]; GII-GRIN-SCIE (GGS) Conference Rating: `A++` (CORE: `A++`, LiveSHINE: `A++`, MA: `A++`).:

  Oswald Lanz and Roberto Manduchi: Hybrid Joint-Separable Multibody Tracking. *Proc. of IEEE/CVF International Conference on Computer Vision and Pattern Recognition (CVPR)*, 2005. `doi:10.1109/CVPR.2005.178`.

- **Single-authored paper in TPAMI**, the most prestigious refeered journal of the field, that received 250+ (Google Scholar), 150+ (Scopus) citations; TPAMI impact factor in 2019 is 17.861; Scimago Journal Rank (2011): Artificial Intelligence: `Q1` (#2 of 141), Computer Vision and Pattern Recognition `Q1` (#1 of 55), Software `Q1` (#2 of 357), Computational Theory and Mathematics: `Q1` (#2 of 97), Applied Mathematics: `Q1` (#3 of 381):

  Oswald Lanz: Approximate Bayesian Multibody Tracking. *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, vol. 28(9), pp. 1436–1449, 2006. `doi:10.1109/TPAMI.2006.177`.

- **Best Student Paper Award** (Caianiello Prize) at the International Conference on Image Analysis and Processing:

  Oswald Lanz: An Information Theoretic Rule for Sample Size Adaptation in Particle Filtering. *Proc. of International Conference on Image Analysis and Processing (ICIAP)*, 2007. `doi:10.1109/ICIAP.2007.4362798`.

I was recipient of the following distinctive awards:

- **Amazon Research Award** (AWS Machine Learning Research Awards, MLRA) associated with a research program titled: Structured Representation Learning for Video Action Recognition and Question Answering. The announcement of award recipients was published in this Amazon blog post. FBK has published an article about it in this magazine.

- **Best Paper Award** at the 2015 ACM MultiMedia Conference, for the paper *Analyzing Free-standing Conversational Groups: A Multimodal Approach*. https://team.inria.fr/perception/acm-mm15-award/

- **Best Student Paper Award** (Caianiello prize) at the 14^{th} International Conference on Image Analysis and Processing, for the single-authored paper *An information theoretic rule for sample size adaptation in particle filtering*. http://www.cvpl.it/en/awards/

- **Best IST Exhibit Award** 2^{nd} **Place** at the 2006 Information Society Technologies Conference (IST'06, organized by the European Commission's Information Society and Media Directorate-General) for the *European Project "Computers in the Human Interaction Loop (CHIL)" exhibition booth*. The booth, among other demonstrators, featured "live visitor tracking" over all three exhibition days running an early version of https://tev.fbk.eu/research/tracking (see Technology transfer section), hereby collecting more than 1000 booth visit traces. "Live visitor tracking" was explicitly mentioned in the motivation of award attribution during the award ceremony.

I was team lead, key contributor at a series of successful participations in international competitions at top venues, where we deployed our own developed models and techniques:

- **Competition 1st Place** at HoloAssist Action Recognition 2024 Challenges with results announced at EgoVis@CVPR2024. The challenge was organized by researchers from ETH and Microsoft. This result was achieved with Artem Merinov in the context of a MSc thesis I supervise. Report on our participation is available here, an announcement of our first place here.

- **Competition 2nd Place** at MECCANO Multimodal Action Recognition 2023 Challenges with results announced at Workshops@ICIAP2023. This result was achieved with Edoardo Bianchi in the context of a MSc thesis I supervised. Report on our participation is available here, an announcement of our first place here.

- **Competition 1st Place** at EPIC-Kitchens Multi-Instance Video Retrieval 2022 Challenges with results announced at EPIC@CVPR2022. The task saw competing contributions from international teams including National University of Singapore, Tecent Data Platform, Chinese Academy of Science. Our team was composed of a PhD student I supervise and a collaborator from University of Barcelona and of University of Udine. Report on our participation is available here, an announcement of our first place here.

- **Competition 2nd Place** at EPIC-Kitchens Action Anticipation 2022 Challenges with results announced at EPIC@CVPR2022. The task saw competing contributions from international teams including Imperial College London and South China University of Technology as well as all leaderboard entries of the previous edition. Our team was composed of a PhD student I supervise and collabroators from NVIDIA AI Technology Center Italy and Taiwan. Report on our participation is available here , an announcement of our second place here.

- **Competition 3rd Place** at EPIC-Kitchens Action Recognition 2021 Challenge with results announced at EPIC@CVPR2021. The task saw competing contributions from international teams including National University of Singapore, Alibaba, Carnegie Mellon University, South China University of Technology as well as all leaderboard entries of previous editions (running since 2019). SAIC-FBK-HUPBA team was composed of a PostDoc I supervised during his PhD, a PhD student I supervise, a collaborator from University of Barcelona, and team members of Samsung AI Cambridge (the postdoc is now at SAIC). A report on our participation is available here, an announcement of our third place here.

- **Competition 3rd Place** at EPIC-Kitchens Action Recognition 2020 Challenge with results announced at EPIC@CVPR2020. The task saw competing contributions from international

teams including Baidu Research, University of Technology Sydney, National University of Singapore, Giorgia Institute of Technology, Samsung AI Centre, Facebook AI, University of Bonn as well as all leaderboard entries of the previous edition. The challenge leaderboard listed 39 competing entries and FBK-HUPBA team was finally ranked third. FBK-HUPBA team was composed of a PostDoc I supervised during his PhD, a collaborator from University of Barcelona, and myself as the lead. The challenge was coordinated by academics from University of Bristol, University of Catania, Indiana University, University of Texas at Austin. A report on our participation is available here, an announcement of our third place here.

- **Competition 3rd Place** at EPIC-Kitchens Action Recognition 2019 Challenge with results announced at EPIC@CVPR2019 and ActivityNet@CVPR2019. The task saw competing contributions from international teams including Facebook AI, Baidu Research, University of Technology Sydney, University of Oxford, INRIA, Nanyang Technological University. The challenge leaderboard listed 26 competing entries and FBK-HUPBA team was finally ranked third. FBK-HUPBA team was composed of a PhD student I supervised, a collaborator from University of Barcelona, and myself as the lead. The challenge was coordinated by academics from University of Bristol, University of Catania, Indiana University, University of Texas at Austin. A report on our participation is available here.

- **Competition 1st Place** at the 2006 CLEAR International Evaluation on Classification of Events, Activities and Relationships, task *3D Single Person Tracking*. The task saw competing contributions from IBM, INRIA, UCS teams among others. The competition was a coordinated effort of Karlsruhe University, National Institute of Standards and Technology (NIST), Evaluations and Language Resources Distribution Agency (ELDA). Competition results were published in the CLEAR'06 Workshop Proceedings at Table on pg. 30

The impact of my latest research have been further recognized by:

- **Amazon through the Research Award program**. The MLRA award can in large part be attributed to my research plans expanding on results published at CVPR2019 [C-21] and CVPR2020 [C-19] and TPAMI [J-05], as well as to our successful participation at EPIC-Kitchens 2019 Challenge where we competed on par with some of the large research labs. The research program is titled: Structured Representation Learning for Video Action Recognition and Question Answering (SRL4V), some information can be found at `https://srl4v.github.io/`.

- **NVIDIA AI Technology Center (NVAITC)** with a project that seconds the MLRA program. NVAITC projects aim at enabling academic institutions at all levels to conduct their research more efficiently by collaborating into research projects, training students, nurturing startups and spreading adoption of the latest AI technology throughout Italy. More information about NVAITC program can be found here. The project gave access to collaboration with Solution Architect, Artificial Intelligence and Accelerated Computing at NVIDIA, for performance optimization and tuning of research code and multi-GPU scaling.

- **CINECA Italian SuperComputing Resource Allocation (ISCRA)** with a Type-C project followed by a large Type-B project that granted access to CINECA HPC System to support our research on video action recognition, video retrieval and question answering. An overview of the ISCRA programme can be found here. The amount of resources allocated to the two projects were 30'000 and 540'000 core-hours on DGX-A100 and Marconi100 cluster.

- **European Laboratory for Learning and Intelligent Systems (ELLIS)** joined as a member in 2020. I am now also associated to ELLIS Trento Unit. Requirements for membership are strict, `https://ellis.eu/members`.

- **Meta through Aria Project approved academic partner** based on a list of proposed research tasks in egocentric perception submitted in 2023. I received research kit with four Aria glasses

to support the proposed research, and was recently invited to join the 'Research Summit for Egocentric Perception with Project Aria' at Meta Campus in Redmond, March 25-26. I could bring with me two PhD students and one RTD researcher, all costs were covered by Meta.

I have been invited as a keynote speaker at workshops organized at top venues to present our latest research, and to give seminars in research labs. In the past five years:

- Invited Seminar at the Visual and Multimodal Applied Learning Laboratory (VANDAL) of Politecnico di Torino, Italy. Title of the talk: From Action Recognition to Action Anticipation. 30.10.2023.
- Keynote Speaker at the Workshop on Multimodal Action Recognition on the MECCANO Dataset of the International Conference on Image Analysis and Processing (ICIAP) 2023, Udine, Italy.
- Invited Speaker at the Workshop AI Technology Center of the Ital-IA Convegno Nazionale CINI sull'Intelligenza Artificiale (Ital-IA) 2023, Pisa, Italy.
- Keynote Speaker at the 5th International Workshop on Egocentric Perception, Interaction and Computing (EPIC) of the International Conference on Computer Vision (ICCV) 2019, Seoul, Korea.
- Invited Seminar at the Siena Artificial Intelligence Lab (SAILab) of the University of Siena, Italy. Title of the talk: Learning to Recognize Actions in Videos. 25.07.2019.

[a] google metrics top venues: `https://scholar.google.com/citations?view_op=top_venues`

Memberships

List of associations (current memberships)

- European Lab for Learning and Intelligent Systems (ELLIS)
- Italian Association for Computer Vision, Pattern Recognition and Machine Learning (CVPL)
- Institute of Electrical and Electronics Engineers (IEEE)

Entrepreneurship

Granted patents

I am inventor of the following patents (co-inventor had a very minor role):

- **US 7,965,86** granted 21-06-2011. Method and apparatus for tracking a number of objects or object parts in image sequences. Inventor: Oswald Lanz.
  `https://patents.google.com/patent/US7965867`
- **EU 2302589** granted 05-12-2012. Method for efficient target detection from images robust to occlusion. Inventors: Oswald Lanz and Stefano Messelodi.
  `https://patents.google.com/patent/EP2302589`
- **US 8,436,913** granted 07-05-2013. Method for efficient target detection from images robust to occlusion. Inventors: Oswald Lanz and Stefano Messelodi.
  `https://patents.google.com/patent/US8436913`
- **EU 1879149** granted 16-03-2016. Method and apparatus for tracking a number of objects or object parts in image sequences. Inventor: Oswald Lanz.
  `https://patents.google.com/patent/EP1879149`

Technology transfer

During my PhD I have developed **SmarTrack technology demonstrator** that implements the methods protected by these patents. This live people tracking demonstrator was showcased many many times to visitors and companies in FBK, and also during events like 'La Notte dei Ricercatori' and during a meeting of the Scientific Committee of FBK. In 2007 it was installed in the exhibition booth that won the Best IST Exhibit Award. After my PhD, I have spent significant amount of time and effort in technology maturation of SmarTrack. More information on the technology demonstrator is available at the following url: `https://tev.fbk.eu/smartrack/`, `https://tev.fbk.eu/research/tracking`. **Technology maturation continued** until recently in FBK in the context of **H2020 project MiMEX** - Micro Market EXperience `https://tev.fbk.eu/projects/mimex`. According to recent information, the MIMEX exhibition booth installed in FBK runs SmarTrack for live visitor tracking.

Endowed professorship

My endowed professorship was co-funded by **Covision Lab**, a consortium backed by seven technology companies with R&D lab located in Bressanone-Brixen developing industrial applications in the field of computer vision. I have been operationally involved in the establishment of the lab since its inception back in 2019, through a collaboration contract with FBK. I have contributed to elaborating early research and technology development priorities matching shareholder needs as well as those promising potential to sustain financially the lab in the longer run. This gave rise to two key projects, Covision Quality `https://www.covisionquality.com/en` and Covision Media (now ALLSIDES) `https://www.covisionmedialab.com/en`, with the latter now spinning off into an independent company. Another development had started without background and has now reached maturity, it is being integrated as a new feature into an existing product line of a shareholder. This provides evidence that these overreaching goals have been appropriately interpreted, and that key steps to achieve them (including early hiring, where I was actively involved) have been implemented to success. It is not easy to fulfill the expectations of a company in its dynamic start-up phase while ensuring quality in teaching, project acquisition and execution, and building a research team at the university with the ambition to keep at the forefront of computer vision and data-driven AI research while at the same time, supporting the research heavy application driven developments of the company. How Covision Lab exposes its connection to unibz is visualized here: `https://www.covisionlab.com/en/research`.

Publications

I authored and co-authored about 100 publications including top-tier venues in the field of computer vision and multi-modal learning such as CVPR, ICLR, ICCV, ECCV, ICPR, ICIP, TPAMI, IJCV, TMM, TIP. My current h-index is 33, and my i-10 index 55, with more than 4000 overall citations, of which more than 2000 in the last 5 years (source: Google Scholar, Dec 2025). My more recent research impact got recognition by Amazon through Machine Learning Research Award and by Meta through Project Aria approved research partner. I am a member of ELLIS, the European Laboratory for Learning and Intelligent Systems.

Articles in Refereed Academic Journals (past ten years)

[J-01] Cynthia I. Ugwu, Emanuele Caruso, and Oswald Lanz. Fractals as Pre-Training Datasets for Anomaly Detection and Localization. *Fractal and Fractional*, vol. 8(11), 661, 2024.

[J-02] Giorgio Cavalliere, Oswald Lanz, Yuri Borgianni, and Enrico Savio. Deep Learning-supported Machine Vision-based Hybrid System Combining Inhomogeneous 2D and 3D Data for the Identification of Surface Defects. *Production and Manufacturing Research*, vol. 12(1), 2378199, 2024.

[J-03] Alex Falcon, Giuseppe Serra, and Oswald Lanz. Improving Semantic Video Retrieval Models by Training with a Relevance-aware Online Mining Strategy. *Computer Vision and Image Understanding*, vol. 245, 104035, 2024.

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[J-09] 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.

[J-10] Swathikiran Sudhakaran and Oswald Lanz. Top-down attention recurrent VLAD encoding for action recognition in videos. *Intelligenza Artificiale*, 2019. Selected and revised papers from the 17th International Conference of the Italian Association for Artificial Intelligence.

[J-11] 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.

[J-12] 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.

[J-13] Lorenzo Porzi, Samuel Rota Bulò, Oswald Lanz, Paolo Valigi, and Elisa Ricci. An automatic image-to-dem alignment approach for annotating mountains pictures on a smartphone. *Machine Vision and Applications*, 28(1-2):101–115, 2017.

[J-14] 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.

[J-15] 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.

[J-16] 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.

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[C-02] Sofia Casarin, Sergio Escalera, and Oswald Lanz. L-SWAG: Layer-Sample Wise Activation with Gradients information for Zero-Shot NAS on Vision Transformers. In *Proceedings of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition, CVPR 2025.*

[C-03] Edoardo Bianchi and Oswald Lanz. Gate-Shift-Pose: Enhancing Action Recognition in Sports with Skeleton Information. In *Proceedings of the Winter Conference on Applications of Computer Vision, WACV 2025.*

[C-04] Maryam Mozaffari, Anton Dignös, Oswald Lanz, Dominik Matt, Gabriele Pasetti Monizza, Matthias Gauly, and Johann Gamper. ONFOODS: A Substitute Recommendation System in Food Recipes. In *Proceedings of the International Conference on Database and Expert Systems Applications 2026.*

[C-05] Sofia Casarin, Cynthia I. Ugwu, Sergio Escalera, and Oswald Lanz. Your Image is My Video: Reshaping the Receptive Field via Image-To-Video Differentiable AutoAugmentation and Fusion. In *Proceedings of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition, CVPR 2024.*

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[C-07] Emanuele Caruso, Sofia Casarin, Thomas Pfund, Florian Schupp, and Oswald Lanz. Automated Visual Inspection via Differentiable Physically-based Rendering under Unknown Illumination. In *Proceedings of the International Symposium on Industrial Engineering and Automation, ISIEA 2024.*

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[C-12] Alex Falcon, Swathikiran Sudhakaran, Giiuseppe Serra, Sergio Escalera, and Oswald Lanz. Relevance-based Margin for Contrastively-trained Video Retrieval Models. In *Proceedings of the International Conference on Multimedia Retrieval, ICMR 2022.*

[C-13] Tsung-Ming Tai, Giuseppe Fiameni, Cheng-Kuang Lee, and Oswald Lanz. Higher Order Recurrent Network with Space-Time Attention for Video Early Action Recognition. In *Proceedings of the IEEE International Conference on Image Processing, ICIP 2022.*

[C-14] Mohamed I. Lakhal, Oswald Lanz, and Andrea Cavallaro. Implicit Texture Mapping for Multi-View Video Synthesis. In *Proceedings of the British Machine Vision Conference, BMVC 2022.*

[C-15] Alex Falcon, Giuseppe Serra, and Oswald Lanz. Learning Video Retrieval Models with Relevance-aware Online Mining. In *Proceedings of the International Conference on Image Analysis and Processing, ICIAP 2021.*

[C-16] Alex Falcon, Oswald Lanz, and Giuseppe Serra. Data Augmentation Techniques for the Video Question Answering Task. In *Proceedings of the European Conference on Computer Vision, ECCV 2020.*

[C-17] Mohamed I. Lakhal, Davide Boscaini, Fabio Poiesi, Oswald Lanz, and Andrea Cavallaro. Novel-View Human Action Synthesis. In *Proceedings of the Asian Conference on Computer Vision, ACCV 2020.*

[C-18] Oswald Lanz, Fabian Sottsas, Michele Conni, Marco Boschetti, Erica Nocerino, Fabio Menna, and Fabio Remondino. A Versatile Multi-Camera System for 3D Acquisition and Modeling. In *Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XLIII-B2-2020, ISPRS 2020, Nice*, France, pages 785-–790, 2020.

[C-19] Swathikiran Sudhakaran, Sergio Escalera, and Oswald Lanz. Gate-Shift Networks for Video Action Recognition. In *Proceedings of the 2020 IEEE Computer Society Conference on Computer Vision and Pattern Recognition, CVPR 2020, June 13-29, Seattle, WA, USA*, pages 1099–1108. IEEE Computer Society, 2020.

[C-20] Mohamed I. Lakhal, Oswald Lanz, and Andrea Cavallaro. View-LSTM: Novel-View Video Synthesis Through View Decomposition. In *Proceedings of the 2019 IEEE Computer Society Conference on Computer Vision, ICCV 2019, October 27-November 2, Seoul, Korea*, pages 7577–7587. IEEE Computer Society, 2019.

[C-21] Swathikiran Sudhakaran, Sergio Escalera, and Oswald Lanz. LSTA: Long Short-Term Attention for Egocentric Action Recognition. In *Proceedings of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition, CVPR 2019, June 16-20, Long Beach, CA, USA*, pages 9954–9963. IEEE Computer Society, 2019.

[C-22] Oswald Lanz, Alessio Brutti, Alessio Xompero, Xinyuan Qian, Maurizio Omologo, and Andrea Cavallaro. Accurate Target Annotation in 3D from Multimodal Streams. In *Proceedings of the IEEE International Conference on Acoustics, Speech and Signal Processing, ICASSP 2019, May 12-17, Brighton, UK*, pages 3931–3935. IEEE Computer Society, 2019.

[C-23] Mohamed I. Lakhal, Oswald Lanz, and Andrea Cavallaro. Learnable Masks for Pose-Guided View Synthesis. In *Proceedings of the IEEE International Conference on Image Processing, ICIP 2019, September 22-25, Taipei, Taiwan*. IEEE Computer Society, 2019.

[C-24] Swathikiran Sudhakaran and Oswald Lanz. Top-Down Attention Recurrent VLAD Encoding for Action Recognition in Videos. In *Proceedings of the International Conference of the Italian Association for Artificial Intelligence, AI*IA 2018, November 20-23, Trento, Italy*, volume 11298 of *LNCS*, pages 375–386. Springer, 2018.

[C-25] Swathikiran Sudhakaran and Oswald Lanz. Attention is All We Need: Nailing Down Object-Centric Attention for Egocentric Activity Recognition. In *Proceedings of the British Machine Vision Conference, BMVC 2018, September 3-6, Northumbria University, Newcastle, UK*, page 229. BMVA Press, 2018.

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[C-27] Xinyuan Qian, Alessio Xompero, Andrea Cavallaro, Alessio Brutti, Oswald Lanz, and Maurizio Omologo. 3D Mouth Tracking from a Compact Microphone Array Co-Located with a Camera. In *Proceedings of the 2018 IEEE International Conference on Acoustics, Speech and Signal Processing, ICASSP 2018, April 15-20, Calgary, AB, Canada*, pages 3071–3075. IEEE, 2018.

[C-28] Alessio Xompero, Oswald Lanz, and Andrea Cavallaro. MORB: A Multi-Scale Binary Descriptor. In *Proceedings of the 2018 IEEE International Conference on Image Processing, ICIP 2018, October 7-10, Athens, Greece*, pages 2167–2171. IEEE, 2018.

[C-29] Swathikiran Sudhakaran and Oswald Lanz. Learning to Detect Violent Videos Using Convolutional Long Short-Term Memory. In *Proceedings of the 14th IEEE International Conference on Advanced Video and Signal Based Surveillance, AVSS 2017, August 29-Sepember 1, Lecce, Italy*, pages 1–6. IEEE, 2017.

[C-30] 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 *Proceedings of the 2015 IEEE International Conference on Computer Vision, ICCV 2015, December 7-13, Santiago, Chile*, pages 4660–4668. IEEE Computer Society, 2015.

[C-31] Xavier Alameda-Pineda, Yan Yan, Elisa Ricci, Oswald Lanz, and Nicu Sebe. Analyzing Free-Standing Conversational Groups: A Multimodal Approach. In *Proceedings of the 23rd Annual ACM Conference on Multimedia Conference, MM 2015, 26-30 October, Brisbane, Australia*, pages 5–14. ACM, 2015.

[C-32] Ramanathan Subramanian, Jagannadan Varadarajan, Elisa Ricci, Oswald Lanz, and Stefan Winkler. Jointly Estimating Interactions and Head, Body Pose of Interactors from Distant Social Scenes. In *Proceedings of the 23rd Annual ACM Conference on Multimedia Conference, MM 2015, October 26-30, Brisbane, Australia*, pages 835–838. ACM, 2015.

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[W-01] Sofia Casarin, Sergio Escalera, and Oswald Lanz. NAS just once: Neural Architecture Search for joint Image-Video Recognition. In *Proceedings of the International Conference on Computer Vision Workshops, Findings Workshop, ICCV 2025.*

[W-02] Sofia Casarin, Oswald Lanz, and Sergio Escalera. Graph-Shape Prioritization for Neural Architecture Search under Distribution Shifts. In *Proceedings of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition Workshops, Workshop on Neural Architecture Search, CVPRW 2024, June 17-21, Seattle, WA, USA, pages 5829–5839. IEEE Computer Society, 2024.*

[W-03] Cynthia I Ugwu, Sofia Casarin, and Oswald Lanz. Fractals as Pre-training Datasets for Anomaly Detection and Localization In *Proceedings of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition Workshops, Workshop on Fair, Data-efficient and Trusted Computer Vision, CVPRW 2024, June 17-21, Seattle, WA, USA, pages 5829–5839. IEEE Computer Society, 2024.*

[W-04] Gabriele Pasetti Monizza, Maryam Mozaffari, Simone Fabbrizzi, Johann Gamper, Oswald Lanz, and Dominik Matt. Defining a Cognitive Digital Twin architecture in food supply chains: the early outcomes of DSS4LCO initiative. In *Proceedings of the International Food Operations and Processing Simulation Workshop, FoodOPS 2024.*

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[W-07] Mohamed I. Lakhal, Albert Clapes, Sergio Escalera, Oswald Lanz, and Andrea Cavallaro. Residual Stacked RNNs for Action Recognition. In *Proceedings of the IEEE European Conference on Computer Vision Workshops, Human Behavior Understanding, ECCV Workshops 2018, September 8-14, Munich, Germany*, 2018.

[W-08] Swathikiran Sudhakaran and Oswald Lanz. Convolutional Long Short-Term Memory Networks for Recognizing First Person Interactions. In *Proceedings of the IEEE International Conference on Computer Vision Workshops, Egocentric Perception, Interaction and Computing, ICCV Workshops 2017, October 22-29, Venice, Italy*, pages 2339–2346. IEEE Computer Society, 2017.

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[S-1] Sofia Casarin, Emanuele Caruso, and Oswald Lanz. GRASP-GCN: Graph-Shape Prioritization for Neural Architecture Search under Distribution Shifts. In *International Conference on Learning Representations Workshops, Workshop on Data-centric Machine Learning Research, DMLR@ICLR 2024, July 27, Vienna, Austria, 2024.*

[S-2] Jonas Rabensteiner, Cynthia Ifeyinwa Ugwu, and Oswald Lanz. Improving Semantic Segmentation Models through Synthetic Data Generation via Diffusion Models. In *International Conference on Learning Representations Workshops, Workshop on Data-centric Machine Learning Research, DMLR@ICLR 2024, July 27, Vienna, Austria, 2024.*

[S-3] Jonas Rabensteiner, Cynthia Ifeyinwa Ugwu, and Oswald Lanz. Fractals as Pre-training Datasets for Anomaly Detection and Localization. In *International Conference on Learning Representations Workshops, Workshop on Data-centric Machine Learning Research, DMLR@ICLR 2024, July 27, Vienna, Austria, 2024.*

[S-4] Andrea Rosani, Ivan Donadello, Michele Calvanese, Alessandro Torcinovich, Giuseppe Di Fatta, M. Montali and Oswald Lanz. Video Analytics for Volleyball: Preliminary Results and Future Prospects of the 5VREAL Project. In *Ital-IA 2024 Workshop on AI in Industry, 3rd National Conference on Artificial Intelligence, organized by CINI, May 29–30, 2024, Napoli, Italy*, 2024.

[S-5] Emanuele Caruso, Francesco Arcidiacono, Thomas Pfund, Florian Schupp, and Oswald Lanz. Digital Twins and Predictive AI-based Inspections for Quality Control. In *Ital-IA 2023 Workshop on AI in Industry, 3rd National Conference on Artificial Intelligence, organized by CINI, May 29–31, 2023, Pisa, Italy*, 2023.

[S-6] Cynthia I Ugwu, Sofia Casarin, Marco Boschetti, and Oswald Lanz. Unsupervised Anomaly Detection on Volumetric data for Industrial Visual Inspection. In *Ital-IA 2023 Workshop on AI in Industry, 3rd National Conference on Artificial Intelligence, organized by CINI, May 29–31, 2023, Pisa, Italy*, 2023.

[S-7] Swathikiran Sudhakaran and Oswald Lanz. An Analysis of Deep Neural Networks with Attention for Action Recognition from a Neurophysiological Perspective. In *2019 IEEE Computer Society Conference on Computer Vision and Pattern Recognition Workshops, Mutual benefits of cognitive and computer vision, CVPR Workshops 2019, June 16-20, Long Beach, CA, USA*, 2019.

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[B-3] Jean-Marc Odobez and Oswald Lanz. Sampling Techniques for Audio-Visual Tracking and Head Pose Estimation. In Steve Renals, Herve' Bourlard, Jean Carletta, and Andrei Popescu-Belis, editors, *Multimodal Signal Processing: Human Interactions in Meetings*, pages 84–102. Cambridge University Press, 2012.

[B-4] Alexander H. Waibel, Rainer Stiefelhagen, Rolf Carlson, Josep R. Casas, Jan Kleindienst, Lori Lamel, Oswald Lanz, Djamel Mostefa, Maurizio Omologo, Fabio Pianesi, Lazaros Polymenakos, Gerasimos Potamianos, John Soldatos, Gerhard Sutschet, and Jacques M. B. Terken. Computers in the Human Interaction Loop. In Hideyuki Nakashima, Hamid K. Aghajan, and Juan Carlos Augusto, editors, *Handbook of Ambient Intelligence and Smart Environments*, pages 1071–1116. Springer, 2010.

[B-5] Keni Bernardin, Rainer Stiefelhagen, Aristodemos Pnevmatikakis, Oswald Lanz, Alessio Brutti, Josep R. Casas, and Gerasimos Potamianos. Person Tracking. In Alexander H. Waibel and Rainer Stiefelhagen, editors, *Computers in the Human Interaction Loop*, Human-Computer Interaction Series, pages 11–22. Springer, 2009.

[B-6] Michael Voit, Nicolas Gourier, Cristian Canton-Ferrer, Oswald Lanz, Rainer Stiefelhagen, and Roberto Brunelli. Estimation of Head Pose. In Alexander H. Waibel and Rainer Stiefelhagen, editors, *Computers in the Human Interaction Loop*, Human-Computer Interaction Series, pages 33–42. Springer, 2009.

[B-7] Oswald Lanz, Roberto Brunelli, Paul Chippendale, Michael Voit, and Rainer Stiefelhagen. Extracting Interaction Cues: Focus of Attention, Body Pose, and Gestures. In Alexander H. Waibel and Rainer Stiefelhagen, editors, *Computers in the Human Interaction Loop*, Human-Computer Interaction Series, pages 87–93. Springer, 2009.

[B-8] Roberto Brunelli, Oswald Lanz, A. Santuari, and Francesco Tobia. Tracking Visitors in a Museum. In Oliviero Stock and Massimo Zancanaro, editors, *PEACH - Intelligent Interfaces for Museum Visits*, Cognitive Technologies, pages 205–225. Springer, 2007.

Edited Volumes

[V-1] Elisa Ricci, Samuel Rota Bulò, Cees Snoek, Oswald Lanz, Stefano Messelodi, and Nicu Sebe. Image Analysis and Processing - ICIAP 2019 - 20th International Conference, Trento, Italy, September 9-13, 2019, Proceedings, Part I. Lecture Notes in Computer Science 11751, Springer 2019, ISBN 978-3-030-30641-0.

[V-2] Elisa Ricci, Samuel Rota Bulò, Cees Snoek, Oswald Lanz, Stefano Messelodi, and Nicu Sebe. Image Analysis and Processing - ICIAP 2019 - 20th International Conference, Trento, Italy, September 9-13, 2019, Proceedings, Part II. Lecture Notes in Computer Science 11752, Springer 2019, ISBN 978-3-030-30644-1.

[V-3] Marco Cristani, Andrea Prati, Oswald Lanz, Stefano Messelodi, Nicu Sebe. New Trends in Image Analysis and Processing - ICIAP 2019 - ICIAP International Workshops, BioFor, PatReCH, e-BADLE, DeepRetail, and Industrial Session, Trento, Italy, September 9-10, 2019, Revised Selected Papers. Lecture Notes in Computer Science 11808, Springer 2019, ISBN 978-3-030-30753-0.

Released Datasets

[D-1] CAV3D dataset: Co-located Audio-Visual streams with 3D tracks, 2018.
`https://speechtek.fbk.eu/cav3d-dataset/`.

[D-2] SALSA dataset: Synergetic sociAL Scene Analysis, 2015.
`https://tev.fbk.eu/resources/salsa`.

[D-3] HALLWAY dataset: Multi-Camera Recordings for People Tracking in Public Spaces, 2015.
`https://tev.fbk.eu/resources/hallwaylab`.

[D-4] COCKTAILPARTY dataset: Multi-Camera Recordings for Social Attention and Group Interaction Analysis, 2013.
`https://tev.fbk.eu/resources/cocktailparty`.

[D-5] VIPT dataset: Multi-Camera Recordings for People Tracking in Unevenly Illuminated Scenes, 2013.
`http://tev.fbk.eu/resources/multi-camera-people-tracking-datasets`.

[D-6] DPOSE dataset: Multi-View Dataset with Head Pose Ground Truth, 2012.
`https://tev.fbk.eu/resources/dpose`.

[D-7] LAB dataset: Multi-Camera Recordings for Multiple People Tracking, 2009.
`https://tev.fbk.eu/resources/hallwaylab`.

Further data

Keynotes, Invited Talks and Seminars (past five years)

- Academic Lightning Presentation at the Research Summit on Egocentric Perception, Meta Building X at Seattle (WA), invite-only event. Title of the talk: *Backcasting Video Action Anticipation*. Mar 25, 2024.
- Invited Speaker at the Workshop on Multimodal Action Recognition on the MECCANO Dataset of the International Conference on Image Analysis and Processing (ICIAP) 2023, Udine, Italy. Title of the talk: *From Action Recognition to Action Anticipation*. Sep 11, 2023.
- Invited Speaker at the Workshop AI Technology Center of the Ital-IA Convegno Nazionale CINI sull'Intelligenza Artificiale (Ital-IA) 2023, Pisa, Italy. Title of the talk: *Overview of Research Activities with NVAITC Support & Collaboration*. May 29, 2023.
- Invited Speaker at the 5th International Workshop on Egocentric Perception, Interaction and Computing (EPIC) of the International Conference on Computer Vision (ICCV) 2019, Seoul, Korea. Title of the talk: *Leveraging Spatial Attention and Gating for Fine-grained Action Recognition*. Nov 2, 2019.
- Invited Speaker at Mathematics for Computer Vision (MCV) Workshop 2018, Trento, Italy. Title of the talk: *Learning to Track*. Feb 15, 2018.
- Invited Talk at Visual and Multimodal Applied Learning Laboratory (VANDAL) of Politecnico di Torino, Italy. Title of the talk: *From Action Recognition to Action Anticipation*. Oct 30, 2023.
- Invited Seminar at the Siena Artificial Intelligence Lab (SAILab) of the University of Siena, Italy. Title of the talk: *Learning to Recognize Actions in Videos*. Jul 25, 2019.
- Seminar at the Science and Technology Hub of Fondazione Bruno Kessler. Title of the talk: *Learning to Recognize Actions in Videos*. Part of "Spring of Artificial Intelligence Seminar Series – A Taste of AI at FBK". Jun 13, 2019.
- Faculty Seminar at the Faculty of Computer Science at the Free University of Bozen-Bolzano. Title of the talk: *Looking at People*. May 7, 2018.

Speaker at Events with Industry and Public Audience (past five years)

- Speaker at the *AI REVOLUTION: il Business del Futuro* event in NOI Techpark Bolzano. Event organized by EOS Solutions in collaboration with Microsoft, Laboratorio SMACT and FUB with 90+ participants. Talk titled "Visioni Accademiche e ambiti di ricerca sull'AI (Uni BZ)". May 16, 2024.
- Presenter and panel speaker at the Kiwanis Event at Durst company in Bressanone-Brixen. Panel discussion together with the CEO of Durst company and the Head of Tech Transfer Digital of NOI Techpark. Event with 80+ participants from Kiwanis Brixen, Kiwanis Bozen and Kiwanis Meran. Feb 22, 2024.
- Presenter and Round Table Speaker *"Tracciamento dei movimenti umani in contesti industriali – opportunita' e sfide"* at Automation & Testing Fair, Polo Fieristico Vicenza. Oct 26, 2023.
- Open lecture *"Computer Vision in the Age of Deep Learning"*, FUB Studium Generale. Apr 5, 2022.
- Live streamed dialog *"Die Zukunft der KI und des Deep Learnings"* at Fraunhofer Trend Dialog. May 31, 2022.
- Seminar *"Visuelle KI im Zeitalter von GPT-4"* at Südstern Business Talk. Oct 19, 2023.

- Seminar *"Visuelle KI im Zeitalter von GPT-4: Wohin gehts?"* at Research Meets Business Event 2023 organised by the Faculty of Engineering in collaboration with the ICT Section of Unternehmerverband Südtirol – Assoimprenditori Alto Adige.
- Seminar *"Digital Innovation Talk: Machine Learning - Wenn Daten Programmieren"* at Unternehmerverband-Confindustria Bolzano. Oct 18, 2021.

Social Media

- I sometimes post news to my LinkedIn channel: `https://www.linkedin.com/in/oswald-lanz/recent-activity/all/`.

Publications about me

Press and Media

- Suedstern Portal, Oct 25, 2023: *Das war der Business Talk 2023*. Link.
- Suedstern Portal, Oct 17, 2023: *Wie schnell werden Sprachmodelle in der Industrie Anwendung finden?*. Link.
- FUB press release, Jun 15, 2022: *New Bachelor in Electronics and Cyber-Physical Systems Engineering*. Link.
- RAI TGR interview, Jun 15, 2022: *Ingegneria elettronica e sistemi ciberfisici anche a Bolzano*. Link.
- FUB news, Jun 7, 2022: *Intelligenten vernetzten Systemen gehört die Zukunft*. Link.
- Salto.bz and Eurac Academia, Jan 10, 2022: *Lern, Maschine!*. Link.
- FUB press release, Jul 23, 2021: *Un ponte tra economia e università*. Link.
- FBK magazine, Jul 10, 2020: *New Amazon Award for FBK in the Field of Machine Learning*. Link.
- La Voce del Trentino, Jan 5, 2016: *Alla Fondazione Bruno Kessler il Premio Marr*. Link.
- Il Trentino - Comunicato Stampa della Provincia Autonoma di Trento, Jan 4, 2016: *Premio Marr alla Fondazione Bruno Kessler*. Link.
- Kurier, Aug 26, 2012: *Ein "Silicon Valley" im Trentino*. Link.
- La Repubblica, May 22, 2007: *Cosi' l'occhio di una telecamera puo' seguire gli intrusi tra la folla*. Link.

Language competence

- **German**: native language
- **Italian**: bilingual proficiency (certified: C1 level, attestato di bilinguismo)
- **English**: professional proficiency (certified: C1 level)

The undersigned gives his consent to his personal data being processed, within the limits of the legislative decree 196/2003, for formalities connected with the present procedure.

Date: Feb 02, 2026 Oswald Lanz