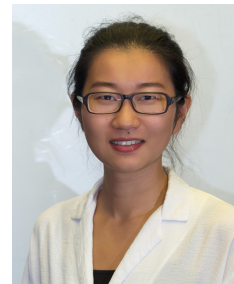


YIMING WANG

Fondazione Bruno Kessler (FBK),
Center of Augmented Intelligence
Via Sommarive, 18, I-38123 Povo (TN)
Email: ywang@fbk.eu



RESEARCH INTERESTS

Empower robotic automation with accurate semantic scene understanding and grounding, for social good.

ABILITAZIONE SCIENTIFICA NAZIONALE (ITALY)

Qualification for Associate Professor

Sector 01/B1 - INFORMATICA

Jul 2024 - Jul 2035

Sector 09/H1 - SISTEMI DI ELABORAZIONE DELLE INFORMAZIONI

Jul 2024 - Jul 2035

EDUCATION

Queen Mary University of London (QMUL)

Sep 2013 - Jun 2018

PhD in Electronic Engineering

Supervisors: Prof. Andrea Cavallaro & Dr. Yi-Zhe Song

QMUL & Beijing University of Posts and Telecommunications (BUPT)

Sep 2009 - Jun 2013

Bachelor of Science in Engineering (Honours)

Ranked 4th out of 355 students

WORK EXPERIENCE

Researcher

Mar 2021 - Present

Advisor: Prof. Elisa Ricci

Deep Visual Learning (DVL) Unit in FBK

Responsibilities: R & D on EU projects, project proposal writing, PhD & Master student supervision

Affiliated Researcher

Mar 2021 - Present

Advisor: Dr. Alessio Del Bue

Pattern Analysis and Computer Vision (PAVIS) Lab in IIT

Responsibilities: PhD student supervision & Research collaboration

Postdoc researcher

Apr 2018 - Mar 2021

Advisor: Dr. Alessio Del Bue

Affiliation: Pattern Analysis and Computer Vision (PAVIS) Lab in IIT

Responsibilities: R & D, PhD supervision, EU project proposal support

TEACHING EXPERIENCE

Academic Teaching

Affiliation: Department of Information Engineering and Computer Science, University of Trento

PhD course: Bringing Perception to Social Robots: An introductory course (15 students)

May 2022

Master course: Introduction to Machine Learning (52 students)

Feb 2024

Responsibilities: Teaching, Tutoring, Exam correction

Teaching Assistant

Oct 2013 - Dec 2017

Affiliation: School of Electronic Engineering and Computer Science, QMUL

Master courses: Introduction to Computer Vision (134 students), Data Mining (154 students), Machine Learning (75 students)

Responsibilities: Teaching, Tutoring, Exam correction

JOURNAL PUBLICATIONS (14)

Collaborative Neural Painting

N. Dall’Asen, W. Menapace, E. Peruzzo, E. Sangineto, Y. Wang, E. Ricci

Computer Vision and Image Understanding (CVIU)

Feb 2025

Unsupervised active visual search with monte carlo planning under uncertain detections

F. Taioli, F. Giuliari, Y. Wang, R. Berra, A. Castellini, A. Del Bue, A. Farinelli, M. Cristani, F. Setti

IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)

Dec 2024

Multimodal Fusion SLAM with Fourier Attention

Y. Zhou, G. Mei, Y. Wang, Y. Wan, F. Poiesi

IEEE Robotics and Automation Letters (RA-L)

Dec 2024

Delving into CLIP latent space for Video Anomaly Recognition

L. Zanella*, B. Liberatori*, W. Menapace, F. Poiesi, Y. Wang, E. Ricci

Computer Vision and Image Understanding (CVIU)

Dec 2024

Positional diffusion: Graph-based diffusion models for set ordering

F. Giuliari, G. Scarpellini, S. Fiorini, P. Morerio, S. James, Y. Wang, A. Del Bue

Pattern Recognition Letters (PR-L)

Oct 2024

Novel class discovery meets foundation models for 3D semantic segmentation

L. Riz, C. Saltori, Y. Wang, E. Ricci, F. Poiesi

International Journal of Computer Vision (IJCV)

Aug 2024

Light-weight Retinal Layer Segmentation with Global Reasoning

X. He, W. Song, Y. Wang, F. Poiesi, J. Yi, M. Desai, Q. Xu, K. Yang, Y. Wan

IEEE Transactions on Instrumentation & Measurement

May 2024

Survey on video anomaly detection in dynamic scenes with moving cameras

R. Jiao, F. Poiesi, Y. Wan, Y. Wang

Artificial Intelligence Review

Oct 2023

Attentive Multimodal Fusion for Optical and Scene Flow

Y. Zhou, G. Mei, Y. Wang, F. Poiesi, Y. Wan

IEEE Robotics and Automation Letters (RA-L)

Jul 2023

Exploiting multi-granularity visual features for retinal layer segmentation in human eyes

X. He, Y. Wang, F. Poiesi, W. Song, Q. Xu, Z. Feng, Y. Wan

Frontiers in Bioengineering and Biotechnology

Jun 2023

Leveraging commonsense for object localisation in partial scenes

F. Giuliari, G. Skenderi, M. Cristani, A. Del Bue, Y. Wang

IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)

May 2023

Fast re-OBJ: Real-time object re-identification in rigid scenes

E. Bayraktar, Y. Wang, A. Del Bue

Machine Vision and Applications

Oct 2022

Loop closure detection using local 3D deep descriptors

Y. Zhou, Y. Wang, F. Poiesi, Q. Qin, Y. Wan

IEEE Robotics and Automation Letters (RA-L)

Mar 2022

Autonomous 3D reconstruction, mapping and exploration of indoor environments with a robotic arm

Y. Wang, S. James, S. E. Konstantina, C. Beltran-Gonzalez, Y. Konishi, A. Del Bue
IEEE Robotics and Automation Letters (RA-L)

Nov 2019

CONFERENCE PUBLICATIONS - 40

Collaborative Instance Object Navigation: Leveraging Uncertainty-Awareness to Minimize Human-Agent Dialogues

F. Taioli, E. Zorzi, G. Franchi, A. Castellini, A. Farinelli, M. Cristani, Y. Wang
Proc. of Int'l Conf. on Computer Vision (ICCV), Honolulu, US

Oct 2025

Training-Free Personalization via Retrieval and Reasoning on Fingerprints

D. Das, D. Talon, Y. Wang, M. Mancini, E. Ricci
Proc. of Int'l Conf. on Computer Vision (ICCV), Honolulu, US

Oct 2025

LOTS of Fashion! Multi-Conditioning for Image Generation via Sketch-Text Pairing

F. Girella, D. Talon, Z. Liu, Z. Ruan, Y. Wang, M. Cristani,
Proc. of Int'l Conf. on Computer Vision (ICCV), Honolulu, US

Oct 2025

On large multimodal models as open-world image classifiers

A. Conti, M. Mancini, E. Fini, Y. Wang, P. Rota, E. Ricci
Proc. of Int'l Conf. on Computer Vision (ICCV), Honolulu, US

Oct 2025

Free-form language-based robotic reasoning and grasping

R. Jiao, A. Fasoli, F. Giuliani, M. Bortolon, S. Povoli, G. Mei, Y. Wang, F. Poiesi
Proc. of IEEE/RSJ Int'l Conf. on Intelligent Robots and Systems (IROS), Hangzhou, CN

Oct 2025

Diversified in-domain synthesis with efficient fine-tuning for few-shot classification

N. Dall'Asen, V. Turrise, N. Sebe, Y. Wang, E. Ricci
Proc. of Int'l Conf. on Image Analysis and Processing (ICIAP), Rome, IT

Sep 2025

Evaluating attribute confusion in fashion text-to-image generation

Z. Liu, F. Girella, Y. Wang, D. Talon
Proc. of Int'l Conf. on Image Analysis and Processing (ICIAP), Rome, IT

Sep 2025

Automatic benchmarking of Large Multimodal Models via iterative experiment programming

A. Conti, E. Fini, P. Rota, Y. Wang, M. Mancini, E. Ricci
Proc. of Int'l Conf. on Image Analysis and Processing (ICIAP), Rome, IT

Sep 2025

PerLA: Perceptive 3D language assistant

G. Mei, W. Lin, L. Riz, Y. Wu, F. Poiesi, Y. Wang
Proc. of IEEE/CVF Computer Vision and Pattern Recognition Conference (CVPR), Nashville, US

Jun 2025

Seeing the Abstract: Translating the Abstract Language for Vision Language Models

D. Talon, F. Girella, Z. Liu, M. Cristani, Y. Wang
Proc. of IEEE/CVF Computer Vision and Pattern Recognition Conference (CVPR), Nashville, US

Jun 2025

Can Text-to-Video Generation help Video-Language Alignment?

L. Zanella, M. Mancini, W. Menapace, S. Tulyakov, Y. Wang, E. Ricci
Proc. of IEEE/CVF Computer Vision and Pattern Recognition Conference (CVPR), Nashville, US

Jun 2025

One VLM to Keep it Learning: Generation and Balancing for Data-free Continual Visual Question Answering

D. Das, D. Talon, Y. Wang, M. Mancini, E. Ricci
Proc. of Winter Conf. on Applications of Computer Vision (WACV), Tucson, US

Feb 2025

Towards a Decentralised Application-Centric Orchestration Framework in the Cloud-Edge Continuum

- A. Ullah, A. Markus, I. A. Hac, T. Kiss, J. Kovacs, J. Deslauriers, Y. Wang, A. L. Murphy, O. Kao May 2025
Proc. of IEEE Int'l Conf. on Fog and Edge Computing (ICFEC), Troms, NO
- Vocabulary-Free 3D Instance Segmentation with Vision and Language Assistant**
G. Mei, L. Riz, Y. Wang, F. Poiesi Mar 2025
Proc. of Int'l Conf. on 3D Vision (3DV), Singapore, SG
- Retrieval-enriched zero-shot image classification in low-resource domains**
N. Dall'Asen, Y. Wang, E. Fini, E. Ricci Nov 2024
Proc. of Conf. on Empirical Methods in Natural Language Processing (EMNLP), Miami, US
- Mind the Error! Detection and Localization of Instruction Errors in Vision-and-Language Navigation**
F. Taioli, S. Rosa, A. Castellini, L. Natale, A. Del Bue, A. Farinelli, M. Cristani, Y. Wang Oct 2024
Proc. of IEEE/RSJ Int'l Conference on Intelligent Robots and Systems (IROS), Abu Dhabi, UAE
- I2EDL: Interactive Instruction Error Detection and Localization**
F. Taioli, S. Rosa, A. Castellini, L. Natale, A. Del Bue, A. Farinelli, M. Cristani, Y. Wang Aug 2024
Proc. of IEEE Int'l Conference on Robot and Human Interactive Communication (RO-MAN), Pasadena, US
- MAVAD: Audio-Visual Dataset and Method for Anomaly Detection in Traffic Videos**
B. Leporowski, A. Bakhtiarnia, N. Bonnici, A. Muscat, L. Zanella, Y. Wang, A. Iosifidis Oct 2024
Proc. of IEEE Int'l Conference on Image Processing (ICIP), Abu Dhabi, UAE
- Test-Time Zero-Shot Temporal Action Localization**
B. Liberatori, A. Conti, P. Rota, Y. Wang, E. Ricci Jun 2024
Proc. of IEEE/CVF Computer Vision and Pattern Recognition Conference (CVPR), Seattle, US
- Harnessing Large Language Models for Training-free Video Anomaly Detection**
L. Zanella, W. Menapace, M. Mancini, Y. Wang, E. Ricci Jun 2024
Proc. of IEEE/CVF Computer Vision and Pattern Recognition Conference (CVPR), Seattle, US
- Geometrically-driven Aggregation for Zero-shot 3D Point Cloud Understanding**
G. Mei, L. Riz, Y. Wang, F. Poiesi Jun 2024
Proc. of IEEE/CVF Computer Vision and Pattern Recognition Conference (CVPR), Seattle, US
- Vocabulary-free Image Classification**
A. Conti, E. Fini, M. Mancini, P. Rota, Y. Wang, E. Ricci Dec 2023
Proc. of Conference on Neural Information Processing Systems, New Orleans, US
- PI-Trans: Parallel-ConvMLP and Implicit-Transformation Based GAN for Cross-View Image Translation**
B. Ren, H. Tang, Y. Wang, X. Li, W. Wang, N. Sebe Jun 2023
Proc. of IEEE Int'l Conference on Acoustics, Speech, and Signal Processing (ICASSP), Rhodes, GR
- 3DSGrasp: 3D Shape-Completion for Robotic Grasp**
S. S. Mohammadi, N. F. Duarte, D. Dimou, Y. Wang, M. Taiana, P. Morerio, A. Dehban, P. Moreno, A. Bernardino, A. Del Bue, J. Santos-Victor May 2023
Proc. of IEEE Int'l Conference on Robotics and Automation (ICRA), London, UK
- ConfMix: Unsupervised Domain Adaptation for Object Detection via Confidence-based Mixing**
G. Mattolin, L. Zanella, E. Ricci, Y. Wang Jan 2023
Proc. of IEEE Winter Conference on Applications of Computer Vision (WACV), Hawaii, US
- Cluster-level pseudo-labelling for source-free cross-domain facial expression recognition**
A. Conti, P. Rota, Y. Wang, E. Ricci Nov 2022
Proc. of British Machine Vision Conference (BMVC), London, UK
- Spatial Commonsense Graph for Object Localisation in Partial Scenes**

- F. Giuliani, G. Skenderi, M. Cristani, Y. Wang, A. Del Bue Jun 2022
Proc. of IEEE/CVF Computer Vision and Pattern Recognition Conference (CVPR), New Orleans, US
- Graph-based Generative Face Anonymisation with Pose Preservation**
N. Dall'Asen, Y. Wang, H. Tang, L. Zanella, E. Ricci May 2022
Proc. of Int'l Conference on Image Analysis and Processing (ICIAP), Lecce, IT
- SVP-Classifer: Single-View Point cloud data classifier with multi-view hallucination**
S. S. Mohammadi, Y. Wang, M. Taiana, P. Morerio, A. Del Bue May 2022
Proc. of Int'l Conference on Image Analysis and Processing (ICIAP), Lecce, IT
- POMP++: Pomcp-based Active Visual Search in unknown indoor environments**
F. Giuliani, A. Castellini, R. Berra, A. Del Bue, A. Farinelli, M. Cristani, F. Setti, Y. Wang Sep 2021
Proc. of IEEE/RSJ Int'l Conference on Intelligent Robots and Systems (IROS), Prague, CR
- PointView-GCN: 3D shape classification with multi-view point clouds**
S. S. Mohammadi, Y. Wang, A. Del Bue Sep 2021
Proc. of IEEE Int'l Conference on Image Processing (ICIP), Anchorage, US
- End-to-end pairwise human proxemics from uncalibrated single images**
P. Morerio, M. Bustreo, Y. Wang, A. Del Bue Sep 2021
Proc. of IEEE Int'l Conference on Image Processing (ICIP), Anchorage, US
- Single Image Human Proxemics Estimation for Visual Social Distancing**
M. Aghaei, M. Bustreo, Y. Wang, P. Morerio, A. Del Bue Jan 2021
Proc. of IEEE Winter Conference on Applications of Computer Vision (WACV), Waikoloa, US
- POMP: Pomcp-based Online Motion Planning for active visual search in indoor environments**
Y. Wang, F. Giuliani, R. Berra, A. Castellini, A. Del Bue, A. Farinelli, M. Cristani, F. Setti Sep 2020
Proc. of British Machine Vision Conference (BMVC), Manchester, UK
- Where to explore next? ExHistCNN for history-aware autonomous 3D exploration**
Y. Wang, A. Del Bue Aug 2020
Proc. of European Conference on Computer Vision (ECCV), Glasgow, UK
- Active 3D classification of multiple objects in cluttered Scenes**
Y. Wang, M. Carletti, F. Setti, M. Cristani, A. Del Bue Oct 2019
Proc. Int'l Conference on Computer Vision Workshops (ICCV-W), Seoul, KR
- Concurrent target following with active directional sensors**
Y. Wang, A. Cavallaro Apr 2018
Proc. of IEEE Int'l Conference on Acoustics, Speech and Signal Processing (ICASSP), Calgary, CA
- Active visual tracking in multi-agent scenarios**
Y. Wang, A. Cavallaro Sep 2017
Proc. of IEEE Advanced Video and Signal based Surveillance (AVSS), Lecce, IT
- Prioritized target tracking with active collaborative cameras**
Y. Wang, A. Cavallaro Aug 2016
Proc. of IEEE Advanced Video and Signal based Surveillance (AVSS), Colorado Springs, US
- Coalition formation for distributed tracking in wireless camera networks**
Y. Wang, A. Cavallaro Aug 2015
Proc. of IEEE Advanced Video and Signal based Surveillance (AVSS), Karlsruhe, GE

RESEARCH PROJECTS

-
- LoCa AI: A low-carbon AI development paradigm via knowledge augmentation**
CariVerona project Dec 2023 - Present

PI: Dr. Yiming Wang

Role: Project Responsible

Objective: to adapt deep learning models to custom target tasks with minimum training effort, reducing cost and carbon footprint of SMEs in the AI business.

Swarmchetrade: Application-level Swarm-based Orchestration Across the Cloud-to-Edge Continuum

EU project

March 2024 - Present

PI: Dr. Elisa Ricci (FBK)

Role: Task leader

Objective: to optimize matchmaking between applications and resources at both deployment and runtime in edge-cloud continuum.

Scene understanding with moving cameras

Research Project in collaboration with University of Shandong

Mar 2021 - Present

Role: Researcher

Objective: to investigate robotic perception for SLAM and semantic understanding.

Active vision for robotic navigation

Research Project in collaboration with Università degli Studi di Verona and IIT

Jul 2019 - Present

Role: Researcher

Objective: to devise perception and navigation algorithms with active vision for autonomous agents to efficiently accomplish given tasks.

PRECRISIS: PRotECTing public spaces thRough Integrated Smarter Innovative Security

EU ISF project

May 2023 - Present

PI: Prof. Elisa Ricci (FBK)

Role: Researcher

Objective: to develop video solutions that help identifying potential vulnerabilities of urban public spaces and simulating plausible scenarios before, during and after any terrorist attacks or violent acts.

MARVEL: Multimodal Extreme Scale Data Analytics for Smart Cities Environments

EU H2020 project (<https://www.marvel-project.eu/>)

Jan 2021 - Present

PI: Dr. Alessio Brutti (FBK)

Role: Task Leader

Objective: to provide a privacy-preserving video solution that serves the construction of smart cities.

PROTECTOR: PROTECTing places of wORship

EU ISF project (<https://www.protector-project.eu/>)

Apr 2021 - Apr 2023

PI: Prof. Elisa Ricci (FBK)

Role: Researcher

Objective: provide video-based solutions for early alerts to protect sites of religious importance.

Autonomous 3D exploration in unknown rooms

Industrial Project in collaboration with Omron (www.omron.com)

Apr 2018 - Feb 2019

PI: Dr. Alessio Del Bue (IIT)

Role: Researcher & Developer

Objective: to achieve efficient autonomous 3D scene exploration.

Active visual tracking with multiple static and moving cameras

PhD Project

Sep 2013 -Jan 2018

PI: Prof. Andrea Cavallaro (QMUL)

Objective: design and realise a distributed system for camera-equipped agents to autonomously select, track and follow their target in a collision-free manner together with ceiling-mounted cameras

RESEARCH-RELATED ACTIVITIES

Editorial Commitments:

Associate Editor of International Journal of Social Robotics	2024 - Present
Associate Editor of Signal Processing: Image Communication (IMAGE)	2024
Lead Guest Editor of Special Issue “Social and Cognitive Interactions in the Open World” in International Journal of Social Robotics	2023 - Present

Organisational commitments:

Area Chair of BMVC @Sheffield	2025
Co-organiser of workshop “Human-aware Embodied AI (HEAI)” in IROS @Hanzhou	2025
Area Chair of CVPR @Nashville	2025
Associate Editor of ICRA @Atlanta	2025
Lead organiser of “Workshop on Green Foundation Models” in ECCV @Milan	2024
Area Chair of ECCV @Milan	2024
Virtual Organization Chair for RO-MAN @Pasadena	2024
Associate Editor of ICRA @Yokohama	2024
Co-organiser of workshop “Social and Cognitive Interactions for Assistive Robotics (SCIAR)” in IROS @Kyoto	2022
Lead organiser of special session “Edge-Fog-Cloud machine learning for smart cities applications” in European Signal Processing Conference (EUSIPCO) @Belgrade	2022

Reviewer for Journals:

TPAMI, RA-L, CVIU, IJCV, IEEE Transactions on Image Processing (TIP), Transactions on Machine Learning Research (TMLR), Journal of Signal, Image and Video Processing, IEEE Transactions on Robotics (TRO), IEEE Transactions on Human Machine Interactions, IEEE Transactions on Multimedia (ToMM), Neurocomputing Journal, IEEE Transactions on Neural Networks and Learning Systems (TNNLS)

Reviewer for Conferences:

CVPR, NeurIPS, WACV, ECCV, ICCV, ICRA, BMVC, ICIAP, IROS, Int’l Workshop on Traffic and Street Surveillance for Safety and Security (T4S), Int’l Conf. on Learning Representations (ICLR), Int’l Joint Conf. on Artificial Intelligence (IJCAI), Int’l Conf. on Pattern Recognition (ICPR), Annual AAAI Conf. on Artificial Intelligence (AAAI)

Examiners for PhD students: Federico Cunico, University of Verona, IT (2025); Andrea Toiari, University of Verona, IT (2025); Andrea Avogaro, University of Verona, IT (2025) Christian Jopp, University of Verona, IT (2022)

Others:

Invited talk in Hefei University of science and technology @Hefei	Dec 2024
Invited talk in University of Bocconi @Milan	Nov 2024
NextGenerationStarProject at IROS	Oct 2024
Session chair in ECCV @Milan	Oct 2024
Invited talk in University of Verona @Verona	Sep 2024
Demo in European Researcher’s Night @Trento	Sep 2021
Demo in Roma Maker Faire @Rome	Oct 2019

Session chair in IROS @Macao

Demo in ECCV @Munich

Outstanding reviewer at BMVC

Nov 2019

Sep 2018

Nov 2021