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Preface

Dear Colleagues,

Welcome to the **28th Computer Vision Winter Workshop (CVWW 2025)**. This year, the workshop is organized by the Institute of Visual Computing (IVC) at Graz University of Technology, and takes place in Graz, Austria, from February 12 to 14, 2025. The Computer Vision Winter Workshop is an annual international event supported by leading research groups from Ljubljana, Prague, Vienna, and Graz. It serves as a platform for researchers and PhD students to connect, exchange ideas, and foster collaboration, driving innovation in the field of computer vision. Topics of interest include image analysis, 3D vision, biometrics, human-computer interaction, vision for robotics, machine learning, and applied computer vision, among others.

This year, we received 29 submissions from various countries and institutions, including 10 contributed papers. The selection process, overseen by the Chairs, involved a rigorous double-blind review conducted by the Program Committee, comprising 40 esteemed experts in computer vision and machine learning. Each submission was reviewed by three experts, who provided detailed feedback on the strengths and weaknesses of the papers to ensure a fair and thorough evaluation. As a result of this process, 6 original contributed papers were accepted for publication and presented at oral sessions in the workshop. In addition to the contributed presentations, we are honored to host 17 invited talks featuring insights from both seasoned and early-career researchers. These were carefully selected by the Chairs in consultation with the Program Committee. A highlight of this year's program is the keynote by Prof. Björn Ommer from Ludwig Maximilian University of Munich.

We would like to express our deepest gratitude to the reviewers for their meticulous and high-quality feedback, which provided valuable insights to the authors and contributed significantly to the success of CVWW 2025. We extend our heartfelt thanks to Prof. Björn Ommer for his keynote talk. Our gratitude also goes to the mayor of the city of Graz for her sponsorship. Additionally, we are pleased to highlight outstanding work through an award sponsored by the Faculty of Computer Science and Biomedical Engineering (CSBME) at Graz University of Technology.

We hope the 28th edition of the Computer Vision Winter Workshop will be a productive and enjoyable event, sparking new ideas and fostering meaningful collaborations. Thank you for joining us!

Friedrich Fraundorfer, Thomas Pock, and *Horst Possegger*

CVWW General Chairs 2025

Official Sponsors

We gratefully acknowledge the support of our partners:

City of Graz

Faculty of Computer Science and
Biomedical Engineering (CSBME)

Workshop Organization

The 28th Computer Vision Winter Workshop, held in Graz from February 12–14, 2025, was organized by the **Institute of Visual Computing (IVC)**—formerly known as the **Institute of Computer Graphics and Vision (ICG)**—at Graz University of Technology. The workshop's topics of interest encompassed a wide range of areas in computer vision, including but not limited to:

- Pattern Recognition
- Computer Vision
- Deep Learning
- Object Detection and Recognition
- Object Categorization
- 3D Vision, Stereo, and Structure from Motion
- Scene Modeling and Understanding
- Image and Video Retrieval
- Video Analysis and Event Recognition

- Statistical Methods and Learning
- Motion and Tracking
- Cognitive Vision
- Biometrics
- Face and Gesture Analysis
- Medical Image Processing
- Performance Evaluation
- Safety and Security
- Embedded Computer Vision

General Chairs

Friedrich Fraundorfer

Thomas Pock

Horst Possegger

Workshop Administration

Horst Possegger

Financial Administration

Charlotte Mayer

Horst Possegger

Program Committee

The Program Committee for CVWW 2025 comprised 40 esteemed experts in computer vision and machine learning. Their valuable feedback contributed significantly to the success of the workshop. The Conference Chairs are grateful for the meticulous and high-quality feedback, provided by all members of the Program Committee:

Csaba Beleznai	Austrian Institute of Technology
Verena Widhalm	Austrian Institute of Technology
Jan Čech	Czech Technical University
Ondřej Chum	Czech Technical University
Pavel Krsek	Czech Technical University
Jiří Matas	Czech Technical University
Oleksandr Shekhovtsov	Czech Technical University
Siniša Šteković	ENPC ParisTech
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Christian Fruhwirth-Reisinger	Graz University of Technology
Robert Harb	Graz University of Technology
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Dušan Malić	Graz University of Technology
Marc Masana	Graz University of Technology
Jakub Micorek	Graz University of Technology
Lukas Radl	Graz University of Technology
David Schinagl	Graz University of Technology
Michael Steiner	Graz University of Technology
Martin Zach	Graz University of Technology
Jun Zhang	Graz University of Technology
Roland Perko	Joanneum Research
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Matej Dobrevski	University of Ljubljana
Žiga Emeršič	University of Ljubljana
Matej Kristan	University of Ljubljana
Alan Lukežič	University of Ljubljana
Luka Šajn	University of Ljubljana
Domen Tabernik	University of Ljubljana
Peter M. Roth	University of Veterinary Medicine Vienna
Lea Bogensperger	University of Zurich
Margrit Gelautz	Vienna University of Technology
Pedro Hermosilla Casajus	Vienna University of Technology
Martin Kampel	Vienna University of Technology
Florian Kleber	Vienna University of Technology
Andreas Kriegler	Vienna University of Technology
Robert Sablatnig	Vienna University of Technology
Markus Vincze	Vienna University of Technology
Sebastian Zambanini	Vienna University of Technology

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Speakers

Keynote Talk

Translating Diffusion Image Models to Other Modalities

Prof. Björn Ommer

Ludwig Maximilian University of Munich

Recently, generative models for learning image representations have seen unprecedented progress. Approaches such as diffusion models and transformers have been widely adopted for various tasks related to visual synthesis, modification, analysis, retrieval, and beyond. Despite their enormous potential, current generative approaches have their own specific limitations. We will discuss how recently popular strategies such as flow matching can significantly enhance efficiency and democratize AI by empowering smaller models.

The main part of the talk will then investigate effective ways to utilize pretrained diffusion-based image synthesis models for different tasks and modalities. Therefore, we will efficiently translate powerful generative image representations to different modalities and show evaluations on other tasks.

Short Speaker Biography

Prof. Björn Ommer is a full professor at the Ludwig Maximilian University of Munich (LMU) where he heads the Computer Vision & Learning (CompVis) Group. Previously, he was a full professor in the Department of Mathematics and Computer Science of Heidelberg University. At Heidelberg, he also served as one of the directors of the Interdisciplinary Center for Scientific Computing (IWR) and of the Heidelberg Collaboratory for Image Processing (HCI). The CompVis Group focuses on fundamental research in computer vision and machine learning, with applications spanning diverse fields such as the digital humanities and life sciences.

Björn Ommer studied computer science with a minor in physics at the University of Bonn. He earned his Ph.D. in computer science from ETH Zurich, where his dissertation, "Learning the Compositional Nature of Objects for Visual Recognition", was honored with the ETH Medal. Following this, he worked as a postdoctoral researcher in Jitendra Malik's Computer Vision Group at UC Berkeley.

He is a member of the Bavarian AI Council and serves as an associate editor for IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), having previously held the same role for Pattern Recognition Letters. Björn is an ELLIS Fellow, faculty member of the ELLIS Unit Munich, affiliated with the Helmholtz Foundation, and a principal investigator at the Munich Center for Machine Learning (MCML). He has held prominent roles at leading conferences, serving as Program Chair for GCPR, Senior Area Chair and Area Chair for CVPR, ICCV, ECCV, and NeurIPS, and as a workshop and tutorial organizer at these venues. In 2023, Björn delivered the opening keynote at NeurIPS. His work on Stable Diffusion has been nominated for the German Future Prize of the President of Germany, and in 2024, he was awarded the German AI Prize.

Invited Presentations

CVWW 2025 hosted 17 invited talks featuring insights from both seasoned and early-career researchers. The following speakers were carefully selected by the Chairs in consultation with the Program Committee:

Klára Janoušková	Czech Technical University in Prague
Miroslav Purkrábek	Czech Technical University in Prague
Jan Škvrna	Czech Technical University in Prague
Alena Smutná	Czech Technical University in Prague
Levente Hajder	Eötvös Loránd University
Christian Fruhwirth-Reisinger	Graz University of Technology
Dušan Malić	Graz University of Technology
Lukas Radl	Graz University of Technology
Matic Fučka	University of Ljubljana
Blaž Rolih	University of Ljubljana
Peter Rot	University of Ljubljana
Leon Todorov	University of Ljubljana
Jovana Videnović	University of Ljubljana
Filip Wolf	University of Ljubljana
Anja Delić	University of Zagreb
Ivan Martinović	University of Zagreb
Tingyu Lin	Vienna University of Technology

Contributed Papers