24th Computer Vision Winter Workshop 2019

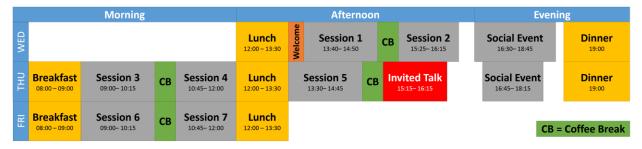6th – 8th February 2019, Stift Vorau, Austria

The **24th Computer Vision Winter Workshop (CVWW 2019),** taking place at Stift Vorau, Austria, is organized by the Institute of Computer Graphics and Vision at Graz University of Technology. The Computer Vision Winter Workshop is the annual meeting of computer vision research groups located in Graz, Ljubljana, Prague, and Vienna. The main goal of this workshop is to communicate fresh scientific ideas within these four groups and to provide conference experience to PhD students. However, the workshop is open to everyone, which can be seen from many international contributions and attendees.

After a double-blind full paper review process by an international programme committee, finally, seven original works have been accepted for publication. They will be presented at the workshop as oral presentations. In addition, we are happy that **Gabriel J. Brostow** (University College London) accepted our invitation to give a talk on **Self-supervision for 3D Shape and Appearance Modeling**. The workshop program is completed by 13 further oral presentations.

The co-chairs of the workshop would like to thank the members of the program committee for their work, support and feedback.

Friedrich Fraundorfer
Peter M. Roth
Fabian Schenk

Program Overview

	Morning	Afternoon					Evening	
WED		**Lunch** 12:00 – 13:30	**Welcome**	**Session 1** 13:40– 14:50	**CB**	**Session 2** 15:25– 16:15	**Social Event** 16:30– 18:45	**Dinner** 19:00

12:00-13:25	*Lunch*
13:30- 13:40	Welcome Speech by the Organizers

13:40-14:50	**Session 1 – Computer Vision in the Wild**
13:40-14:05	**Leveraging Outdoor Webcams for Local Descriptor Learning** *Milan Pultar, Dmytro Mishkin, Jiri Matas*
14:05-14:30	**Image Retrieval under Varying Illumination Conditions** *Tomáš Jeníček, Ondrej Chum*
14:30-14:55	**Quantitative Affine Feature Detector Comparison Based on Real-World Images Taken by a Quadcopter** *Zoltán Pusztai, Levente Hajder*
14:55-15:25	*Coffee Break*

15:25-16:15	**Session 2 – Beyond Computer Vision**
15:25-15:50	**Counting slope regions in the surface graphs** *Darshan Batavia, Rocio Gonzalez-Diaz, Walter G. Kropatsch, Rocio Moreno Casablanca*
15:50-16:15	**Geometric Projection Parameter Consensus: Joint 3D Pose and Focal Length Estimation in the Wild** *Alexander Grabner, Peter M. Roth, Vincent Lepetit*

16:15-16:30	Preparation for Social Event
16:30-18:45	Social Event – Sub Terra Vorau, Guided tour through subterranean pathways
	Sturdy shoes and warm clothes recommended
19:00	*Dinner*

Invited Talk: Self-supervision for 3D Shape and Appearance modeling

A single glimpse is hardly enough to triangulate the 3D shapes of a scene. But many glimpses taken together, can give enough supervision to accomplish interesting tasks, such as depth from a single photo, volume from a single depth, and appearance of objects and scenes from novel viewing angles. In this talk, I will distill the main lessons we have learned recently, in attempting to a) design networks that understand "a bit" about 3D, and to b) train networks to predict depth, or volumes, or appearance, for several application domains. Some details matter, and the data itself is a key ingredient. There is still more exciting work to be done!

This talk will cover equivariance, consistency losses, and some personal views on diversity in predictions.

Gabriel J. Brostow
University College London

	Morning				Afternoon				Evening	
THU	**Breakfast** 08:00 – 09:00	**Session 3** 09:00– 10:15	CB	**Session 4** 10:45– 12:00	**Lunch** 12:00 – 13:30	**Session 5** 13:30– 14:45	CB	**Invited Talk** 15:15– 16:15	**Social Event** 16:45– 18:15	**Dinner** 19:00

08:00-09:00   *Breakfast*

09:00-10:15   Session 3 – Benchmarks and Datasets

09:00-09:25   **An Unbiased Look at Face Hallucination**

Klemen Grm, Martin Pernuš, Leo Cluzel, Simon Dobrisek, Vitomir Struc

09:25-09:50   **SyDD: Synthetic Depth Data Randomization for Object Detection using Domain-Relevant Background**

Stefan Thalhammer, Kiru Park, Timothy Patten, Markus Vincze, Walter G. Kropatsch

09:50-10:15   **Benchmarking Semantic Segmentation Methods for Obstacle Detection on a Marine Environment**

Borja Bovcon, Matej Kristan

10:15-10:45   *Coffee Break*

Group Photo

10:45-12:00   Session 4 – Space-Time Methods

10:45-11:10   **Situation-Aware Pedestrian Trajectory Prediction with Spatio-Temporal Attention Model**

Sirin Haddad, Meiqing Wu, Wei He, Siew-Kei Lam

11:10-11:35   **A Spatiotemporal Generative Adversarial Network to Generate Human Action Videos**

Stefan Ainetter, Axel Pinz

11:35-12:00   **Combining Top-Down and Bottom-Up Processes to Extract Space-Time Volumes of Interest from Video**

Filip Ilic, Axel Pinz

12:00-13:30   *Lunch*

13:30-14:45   Session 5 – Geometric Vision

13:30-13:55   **Robust Fitting of Geometric Primitives on LiDAR Data**

Tóth Tekla

13:55-14:20   **MAGSAC: marginalizing sample consensus**

Dániel Baráth, Jiri Matas, Jana Noskova

14:20-14:45   **Planar Motion from a Single Affine Correspondence**

Levente Hajder, Dániel Baráth

14:45-15:15   *Coffee Break*

15:15-16:15   Invited Talk – Self-supervision for 3D Shape and Appearance modeling

Gabriel Brostow – University College London

16:45-18:15   Social Event - Cider Tasting/Mostverkostung

19:00   *Dinner*

	Morning				Afternoon	Evening
FRI	**Breakfast** 08:00 – 09:00	**Session 6** 09:00– 10:15	**CB**	**Session 7** 10:45– 12:00	**Lunch** 12:00 – 13:30	

08:00-09:00   *Breakfast*

09:00-10:45   Session 6 – Visual Learning

09:00-09:25   **Improving CNN classifiers by estimating test-time priors**

Milan Sulc, Jiri Matas

09:25-09:50   **The Human is Always Right: The Cognitive Relevance Transform**

Gregor Koporec, Andrej Košir, Aleš Leonardis, Janez Perš

09:50-10:15   **Deep Learning for Surface-Defect Detection**

Domen Tabernik, Samo Šela, Jure Skvarč, Danijel Skocaj

10:15-10:45   *Coffee Break*

10:45-12:00   Session 7 – Object Detection and Pose Estimation

10:45-11:10   **Pulling on socks by a force-compliant robot**

Megumi Miyashita, Vladimír Kubelka, Vaclav Hlavac

11:10-11:35   **Perspective transformation for accurate detection of 3D bounding boxes of vehicles in traffic surveillance**

Viktor Kocur

11:35-12:00   **Object Tracking by Reconstruction with View-Specific Discriminative Correlation Filters**

Ugur Kart, Alan Lukezic, Matej Kristan, Joni-Kristian Kamarainen, Jiri Matas

12:00-12:15   Closing Ceremony and Awards

12:15-13:30   *Lunch*