



Seventh Croatian
Computer Vision Workshop

October 24, 2018, Zagreb, Croatia

PROCEEDINGS

OF

C C V W

2 0 1 8



University of Zagreb
Center of Excellence
for Computer Vision

CCVW 2018

Proceedings of the Croatian Computer Vision Workshop

Zagreb, Croatia, October 24, 2018

S. Lončarić, T. Petković (Eds.)

Organizing Institution

Center of Excellence for Computer Vision
University of Zagreb Faculty of Electrical Engineering and Computing, Croatia

Auspices

Croatian Academy of Engineering

Supported by

IEEE Croatia Section
IEEE Croatia Section Computational Intelligence Chapter
IEEE Croatia Section Computer Society Chapter
IEEE Croatia Section Signal Processing Society Chapter

Sponsors

Visage Technologies AB

Proceedings of the Croatian Computer Vision Workshop
CCVW 2018

Editor-in-chief

Sven Lončarić (sven.loncaric@fer.hr)
University of Zagreb Faculty of Electrical Engineering and Computing
Unska 3, HR-10000, Croatia

Editor

Tomislav Petković (tomislav.petkovic.jr@fer.hr)
University of Zagreb Faculty of Electrical Engineering and Computing
Unska 3, HR-10000, Croatia

Production, Publishing and Cover Design

Tomislav Petković (tomislav.petkovic.jr@fer.hr)
University of Zagreb Faculty of Electrical Engineering and Computing
Unska 3, HR-10000, Croatia

Publisher

University of Zagreb Faculty of Electrical Engineering and Computing
Unska 3, HR-10000 Zagreb, OIB: 57029260362

Copyright © 2018 by the University of Zagreb.



This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International.
<http://creativecommons.org/licenses/by-nc-sa/4.0/>

ISSN 1849-1227

Proceedings of the Croatian Computer Vision Workshop, Year 6
October 24, 2018, Zagreb, Croatia

Preface

On behalf of the Organizing Committee it is our pleasure to invite you to Zagreb for the 7th Croatian Computer Vision Workshop. After visiting Osijek and Split in the previous two years this year the Workshop returns to the capital city of Croatia, Zagreb, where it started seven years ago.

The objective of the Workshop is to bring together professionals from academia and industry in the area of computer vision in order to foster research and encourage academia-industry collaboration in this dynamic field. The Workshop program includes oral and poster presentations of peer reviewed research from Croatia and elsewhere. Furthermore, the program includes an invited lecture by a distinguished international researcher presenting state-of-the-art in computer vision. The Workshop sponsor will provide a perspective on needs and activities of the industry. Finally, one session is devoted to short presentations of activities at Croatian research laboratories.

The Workshop is organized by the Center of Excellence for Computer Vision and the Faculty of Electrical Engineering and Computing of the University of Zagreb.

Zagreb is a beautiful European city with many cultural and historical attractions, which we are sure all participants will enjoy. We look forward to meeting you all in Zagreb for the 7th Croatian Computer Vision Workshop.

October 2018

Sven Lončarić, General Chair

Tomislav Petković, Technical Program Chair

Acknowledgements

The Workshop is the result of the committed efforts of many volunteers. All included papers are results of dedicated research. Without such contribution and commitment this Workshop would not have been possible.

The 2018 7th Croatian Computer Vision Workshop (CCVW) has been organized under the auspices of the Croatian Academy of Engineering.

We are grateful for the support of the IEEE Croatia Section and its three Chapters (CIS11, C16, SP01), who helped us in granting the high scientific quality of the presentations.

We are also grateful to the sponsor Visage Technologies AB that financially supported this Workshop.

Contents

Organizing Committee	vi
CCVW 2018	1
Oral Session	1
<i>K. Košćević, M. Subašić</i> Automatic Visual Reading of Meters Using Deep Learning	1
<i>N. Mrzljak, T. Hrkać</i> Experimental Evaluation of Deep Reinforcement Learning Algorithms	7
Author Index	13

Organizing Committee

General Chair

Sven Lončarić, University of Zagreb, Croatia

Technical Program Co-Chairs

Tomislav Petković, University of Zagreb, Croatia

Technical Program Committee

Nikola Banić, Croatia
Bart Bijnens, Spain
Hrvoje Bogunović, Austria
Mirjana Bonkobić, Croatia
Jelena Božek, Croatia
Robert Cupec, Croatia
Dubravko Gajski, Croatia
Irena Galić, Croatia
Hrvoje Gold, Croatia
Mislav Grgić, Croatia
Sonja Grgić, Croatia
Edouard Ivanjko, Croatia

Bojan Jerbić, Croatia
Zoran Kalafatić, Croatia
Hrvoje Kalinić, Croatia
Lidija Mandić, Croatia
Vladan Papić, Croatia
Janez Perš, Croatia
Thomas Pock, Austria
Tomislav Pribanić, Croatia
Slobodan Ribarić, Croatia
Darko Stipanišev, Croatia
Marko Subašić, Croatia
Siniša Šegvić, Croatia

Local Organizing Committee

Marko Subašić, Chair
Jelena Ivanković

Ivana Zadro

Publications Chair

Tomislav Petković, University of Zagreb, Croatia

Author Index

H		M	
Hrkać, T.	7	Mrzljak, N.	7
K		S	
Košćević, K.	1	Subašić, M.	1

