

Commenced Publication in 1973

Founding and Former Series Editors:

Gerhard Goos, Juris Hartmanis, and Jan van Leeuwen

Editorial Board

David Hutchison

Lancaster University, Lancaster, UK

Takeo Kanade

Carnegie Mellon University, Pittsburgh, PA, USA

Josef Kittler

University of Surrey, Guildford, UK

Jon M. Kleinberg

Cornell University, Ithaca, NY, USA

Friedemann Mattern

ETH Zurich, Zurich, Switzerland

John C. Mitchell

Stanford University, Stanford, CA, USA

Moni Naor

Weizmann Institute of Science, Rehovot, Israel

C. Pandu Rangan

Indian Institute of Technology Madras, Chennai, India

Bernhard Steffen

TU Dortmund University, Dortmund, Germany

Demetri Terzopoulos

University of California, Los Angeles, CA, USA

Doug Tygar

University of California, Berkeley, CA, USA

Gerhard Weikum

Max Planck Institute for Informatics, Saarbrücken, Germany

More information about this series at <http://www.springer.com/series/7412>

Vittorio Ferrari · Martial Hebert
Cristian Sminchisescu · Yair Weiss (Eds.)

Computer Vision – ECCV 2018

15th European Conference
Munich, Germany, September 8–14, 2018
Proceedings, Part VI

Editors

Vittorio Ferrari
Google Research
Zurich
Switzerland

Martial Hebert
Carnegie Mellon University
Pittsburgh, PA
USA

Cristian Sminchisescu
Google Research
Zurich
Switzerland

Yair Weiss
Hebrew University of Jerusalem
Jerusalem
Israel

ISSN 0302-9743

ISSN 1611-3349 (electronic)

Lecture Notes in Computer Science

ISBN 978-3-030-01230-4

ISBN 978-3-030-01231-1 (eBook)

<https://doi.org/10.1007/978-3-030-01231-1>

Library of Congress Control Number: 2018955489

LNCS Sublibrary: SL6 – Image Processing, Computer Vision, Pattern Recognition, and Graphics

© Springer Nature Switzerland AG 2018

This work is subject to copyright. All rights are reserved by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

The publisher, the authors and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, express or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

This Springer imprint is published by the registered company Springer Nature Switzerland AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Foreword

It was our great pleasure to host the European Conference on Computer Vision 2018 in Munich, Germany. This constituted by far the largest ECCV event ever. With close to 2,900 registered participants and another 600 on the waiting list one month before the conference, participation more than doubled since the last ECCV in Amsterdam. We believe that this is due to a dramatic growth of the computer vision community combined with the popularity of Munich as a major European hub of culture, science, and industry. The conference took place in the heart of Munich in the concert hall Gasteig with workshops and tutorials held at the downtown campus of the Technical University of Munich.

One of the major innovations for ECCV 2018 was the free perpetual availability of all conference and workshop papers, which is often referred to as open access. We note that this is not precisely the same use of the term as in the Budapest declaration. Since 2013, CVPR and ICCV have had their papers hosted by the Computer Vision Foundation (CVF), in parallel with the IEEE Xplore version. This has proved highly beneficial to the computer vision community.

We are delighted to announce that for ECCV 2018 a very similar arrangement was put in place with the cooperation of Springer. In particular, the author's final version will be freely available in perpetuity on a CVF page, while SpringerLink will continue to host a version with further improvements, such as activating reference links and including video. We believe that this will give readers the best of both worlds; researchers who are focused on the technical content will have a freely available version in an easily accessible place, while subscribers to SpringerLink will continue to have the additional benefits that this provides. We thank Alfred Hofmann from Springer for helping to negotiate this agreement, which we expect will continue for future versions of ECCV.

September 2018

Horst Bischof
Daniel Cremers
Bernt Schiele
Ramin Zabih

Preface

Welcome to the proceedings of the 2018 European Conference on Computer Vision (ECCV 2018) held in Munich, Germany. We are delighted to present this volume reflecting a strong and exciting program, the result of an extensive review process. In total, we received 2,439 valid paper submissions. Of these, 776 were accepted (31.8%): 717 as posters (29.4%) and 59 as oral presentations (2.4%). All oral presentations were presented as posters as well. The program selection process was complicated this year by the large increase in the number of submitted papers, +65% over ECCV 2016, and the use of CMT3 for the first time for a computer vision conference. The program selection process was supported by four program co-chairs (PCs), 126 area chairs (ACs), and 1,199 reviewers with reviews assigned.

We were primarily responsible for the design and execution of the review process. Beyond administrative rejections, we were involved in acceptance decisions only in the very few cases where the ACs were not able to agree on a decision. As PCs, and as is customary in the field, we were not allowed to co-author a submission. General co-chairs and other co-organizers who played no role in the review process were permitted to submit papers, and were treated as any other author is.

Acceptance decisions were made by two independent ACs. The ACs also made a joint recommendation for promoting papers to oral status. We decided on the final selection of oral presentations based on the ACs' recommendations. There were 126 ACs, selected according to their technical expertise, experience, and geographical diversity (63 from European, nine from Asian/Australian, and 54 from North American institutions). Indeed, 126 ACs is a substantial increase in the number of ACs due to the natural increase in the number of papers and to our desire to maintain the number of papers assigned to each AC to a manageable number so as to ensure quality. The ACs were aided by the 1,199 reviewers to whom papers were assigned for reviewing. The Program Committee was selected from committees of previous ECCV, ICCV, and CVPR conferences and was extended on the basis of suggestions from the ACs. Having a large pool of Program Committee members for reviewing allowed us to match expertise while reducing reviewer loads. No more than eight papers were assigned to a reviewer, maintaining the reviewers' load at the same level as ECCV 2016 despite the increase in the number of submitted papers.

Conflicts of interest between ACs, Program Committee members, and papers were identified based on the home institutions, and on previous collaborations of all researchers involved. To find institutional conflicts, all authors, Program Committee members, and ACs were asked to list the Internet domains of their current institutions. We assigned on average approximately 18 papers to each AC. The papers were assigned using the affinity scores from the Toronto Paper Matching System (TPMS) and additional data from the OpenReview system, managed by a UMass group. OpenReview used additional information from ACs' and authors' records to identify collaborations and to generate matches. OpenReview was invaluable in

refining conflict definitions and in generating quality matches. The only glitch is that, once the matches were generated, a small percentage of papers were unassigned because of discrepancies between the OpenReview conflicts and the conflicts entered in CMT3. We manually assigned these papers. This glitch is revealing of the challenge of using multiple systems at once (CMT3 and OpenReview in this case), which needs to be addressed in future.

After assignment of papers to ACs, the ACs suggested seven reviewers per paper from the Program Committee pool. The selection and rank ordering were facilitated by the TPMS affinity scores visible to the ACs for each paper/reviewer pair. The final assignment of papers to reviewers was generated again through OpenReview in order to account for refined conflict definitions. This required new features in the OpenReview matching system to accommodate the ECCV workflow, in particular to incorporate selection ranking, and maximum reviewer load. Very few papers received fewer than three reviewers after matching and were handled through manual assignment. Reviewers were then asked to comment on the merit of each paper and to make an initial recommendation ranging from definitely reject to definitely accept, including a borderline rating. The reviewers were also asked to suggest explicit questions they wanted to see answered in the authors' rebuttal. The initial review period was five weeks. Because of the delay in getting all the reviews in, we had to delay the final release of the reviews by four days. However, because of the slack included at the tail end of the schedule, we were able to maintain the decision target date with sufficient time for all the phases. We reassigned over 100 reviews from 40 reviewers during the review period. Unfortunately, the main reason for these reassignments was reviewers declining to review, after having accepted to do so. Other reasons included technical relevance and occasional unidentified conflicts. We express our thanks to the emergency reviewers who generously accepted to perform these reviews under short notice. In addition, a substantial number of manual corrections had to do with reviewers using a different email address than the one that was used at the time of the reviewer invitation. This is revealing of a broader issue with identifying users by email addresses that change frequently enough to cause significant problems during the timespan of the conference process.

The authors were then given the opportunity to rebut the reviews, to identify factual errors, and to address the specific questions raised by the reviewers over a seven-day rebuttal period. The exact format of the rebuttal was the object of considerable debate among the organizers, as well as with prior organizers. At issue is to balance giving the author the opportunity to respond completely and precisely to the reviewers, e.g., by including graphs of experiments, while avoiding requests for completely new material or experimental results not included in the original paper. In the end, we decided on the two-page PDF document in conference format. Following this rebuttal period, reviewers and ACs discussed papers at length, after which reviewers finalized their evaluation and gave a final recommendation to the ACs. A significant percentage of the reviewers did enter their final recommendation if it did not differ from their initial recommendation. Given the tight schedule, we did not wait until all were entered.

After this discussion period, each paper was assigned to a second AC. The AC/paper matching was again run through OpenReview. Again, the OpenReview team worked quickly to implement the features specific to this process, in this case accounting for the

existing AC assignment, as well as minimizing the fragmentation across ACs, so that each AC had on average only 5.5 buddy ACs to communicate with. The largest number was 11. Given the complexity of the conflicts, this was a very efficient set of assignments from OpenReview. Each paper was then evaluated by its assigned pair of ACs. For each paper, we required each of the two ACs assigned to certify both the final recommendation and the metareview (aka consolidation report). In all cases, after extensive discussions, the two ACs arrived at a common acceptance decision. We maintained these decisions, with the caveat that we did evaluate, sometimes going back to the ACs, a few papers for which the final acceptance decision substantially deviated from the consensus from the reviewers, amending three decisions in the process.

We want to thank everyone involved in making ECCV 2018 possible. The success of ECCV 2018 depended on the quality of papers submitted by the authors, and on the very hard work of the ACs and the Program Committee members. We are particularly grateful to the OpenReview team (Melisa Bok, Ari Kobren, Andrew McCallum, Michael Spector) for their support, in particular their willingness to implement new features, often on a tight schedule, to Laurent Charlin for the use of the Toronto Paper Matching System, to the CMT3 team, in particular in dealing with all the issues that arise when using a new system, to Friedrich Fraundorfer and Quirin Lohr for maintaining the online version of the program, and to the CMU staff (Keyla Cook, Lynnetta Miller, Ashley Song, Nora Kazour) for assisting with data entry/editing in CMT3. Finally, the preparation of these proceedings would not have been possible without the diligent effort of the publication chairs, Albert Ali Salah and Hamdi Dibeklioglu, and of Anna Kramer and Alfred Hofmann from Springer.

September 2018

Vittorio Ferrari
Martial Hebert
Cristian Sminchisescu
Yair Weiss

Organization

General Chairs

Horst Bischof	Graz University of Technology, Austria
Daniel Cremers	Technical University of Munich, Germany
Bernt Schiele	Saarland University, Max Planck Institute for Informatics, Germany
Ramin Zabih	CornellNYCTech, USA

Program Committee Co-chairs

Vittorio Ferrari	University of Edinburgh, UK
Martial Hebert	Carnegie Mellon University, USA
Cristian Sminchisescu	Lund University, Sweden
Yair Weiss	Hebrew University, Israel

Local Arrangements Chairs

Björn Menze	Technical University of Munich, Germany
Matthias Niessner	Technical University of Munich, Germany

Workshop Chairs

Stefan Roth	TU Darmstadt, Germany
Laura Leal-Taixé	Technical University of Munich, Germany

Tutorial Chairs

Michael Bronstein	Università della Svizzera Italiana, Switzerland
Laura Leal-Taixé	Technical University of Munich, Germany

Website Chair

Friedrich Fraundorfer	Graz University of Technology, Austria
-----------------------	--

Demo Chairs

Federico Tombari	Technical University of Munich, Germany
Joerg Stueckler	Technical University of Munich, Germany

Publicity Chair

Giovanni Maria Farinella
University of Catania, Italy

Industrial Liaison Chairs

Florent Perronnin
Yunchao Gong
Helmut Grabner
Naver Labs, France
Snap, USA
Logitech, Switzerland

Finance Chair

Gerard Medioni
Amazon, University of Southern California, USA

Publication Chairs

Albert Ali Salah
Hamdi Dibeklioglu
Boğaziçi University, Turkey
Bilkent University, Turkey

Area Chairs

Kalle Åström
Zeynep Akata
Joao Barreto
Ronen Basri
Dhruv Batra
Serge Belongie
Rodrigo Benenson
Hakan Bilen
Matthew Blaschko
Edmond Boyer
Gabriel Brostow
Thomas Brox
Marcus Brubaker
Barbara Caputo
Lund University, Sweden
University of Amsterdam, The Netherlands
University of Coimbra, Portugal
Weizmann Institute of Science, Israel
Georgia Tech and Facebook AI Research, USA
Cornell University, USA
Google, Switzerland
University of Edinburgh, UK
KU Leuven, Belgium
Inria, France
University College London, UK
University of Freiburg, Germany
York University, Canada
Politecnico di Torino and the Italian Institute
of Technology, Italy
Tim Cootes
Trevor Darrell
Larry Davis
Andrew Davison
Fernando de la Torre
Irfan Essa
Ali Farhadi
Paolo Favaro
Michael Felsberg
University of Manchester, UK
University of California, Berkeley, USA
University of Maryland at College Park, USA
Imperial College London, UK
Carnegie Mellon University, USA
GeorgiaTech, USA
University of Washington, USA
University of Bern, Switzerland
Linköping University, Sweden

Sanja Fidler	University of Toronto, Canada
Andrew Fitzgibbon	Microsoft, Cambridge, UK
David Forsyth	University of Illinois at Urbana-Champaign, USA
Charless Fowlkes	University of California, Irvine, USA
Bill Freeman	MIT, USA
Mario Fritz	MPII, Germany
Jürgen Gall	University of Bonn, Germany
Dariu Gavrilă	TU Delft, The Netherlands
Andreas Geiger	MPI-IS and University of Tübingen, Germany
Theo Gevers	University of Amsterdam, The Netherlands
Ross Girshick	Facebook AI Research, USA
Kristen Grauman	Facebook AI Research and UT Austin, USA
Abhinav Gupta	Carnegie Mellon University, USA
Kaiming He	Facebook AI Research, USA
Martial Hebert	Carnegie Mellon University, USA
Anders Heyden	Lund University, Sweden
Timothy Hospedales	University of Edinburgh, UK
Michal Irani	Weizmann Institute of Science, Israel
Phillip Isola	University of California, Berkeley, USA
Hervé Jégou	Facebook AI Research, France
David Jacobs	University of Maryland, College Park, USA
Allan Jepson	University of Toronto, Canada
Jiaya Jia	Chinese University of Hong Kong, SAR China
Fredrik Kahl	Chalmers University, USA
Hedvig Kjellström	KTH Royal Institute of Technology, Sweden
Iasonas Kokkinos	University College London and Facebook, UK
Vladlen Koltun	Intel Labs, USA
Philipp Krähenbühl	UT Austin, USA
M. Pawan Kumar	University of Oxford, UK
Kyros Kutulakos	University of Toronto, Canada
In Kweon	KAIST, South Korea
Ivan Laptev	Inria, France
Svetlana Lazebnik	University of Illinois at Urbana-Champaign, USA
Laura Leal-Taixé	Technical University of Munich, Germany
Erik Learned-Miller	University of Massachusetts, Amherst, USA
Kyoung Mu Lee	Seoul National University, South Korea
Bastian Leibe	RWTH Aachen University, Germany
Aleš Leonardis	University of Birmingham, UK
Vincent Lepetit	University of Bordeaux, France and Graz University of Technology, Austria
Fuxin Li	Oregon State University, USA
Dahua Lin	Chinese University of Hong Kong, SAR China
Jim Little	University of British Columbia, Canada
Ce Liu	Google, USA
Chen Change Loy	Nanyang Technological University, Singapore
Jiri Matas	Czech Technical University in Prague, Czechia

Yasuyuki Matsushita	Osaka University, Japan
Dimitris Metaxas	Rutgers University, USA
Greg Mori	Simon Fraser University, Canada
Vittorio Murino	Istituto Italiano di Tecnologia, Italy
Richard Newcombe	Oculus Research, USA
Minh Hoai Nguyen	Stony Brook University, USA
Sebastian Nowozin	Microsoft Research Cambridge, UK
Aude Oliva	MIT, USA
Bjorn Ommer	Heidelberg University, Germany
Tomas Pajdla	Czech Technical University in Prague, Czechia
Maja Pantic	Imperial College London and Samsung AI Research Centre Cambridge, UK
Caroline Pantofaru	Google, USA
Devi Parikh	Georgia Tech and Facebook AI Research, USA
Sylvain Paris	Adobe Research, USA
Vladimir Pavlovic	Rutgers University, USA
Marcello Pelillo	University of Venice, Italy
Patrick Pérez	Valeo, France
Robert Pless	George Washington University, USA
Thomas Pock	Graz University of Technology, Austria
Jean Ponce	Inria, France
Gerard Pons-Moll	MPII, Saarland Informatics Campus, Germany
Long Quan	Hong Kong University of Science and Technology, SAR China
Stefan Roth	TU Darmstadt, Germany
Carsten Roth	University of Heidelberg, Germany
Bryan Russell	Adobe Research, USA
Kate Saenko	Boston University, USA
Mathieu Salzmann	EPFL, Switzerland
Dimitris Samaras	Stony Brook University, USA
Yoichi Sato	University of Tokyo, Japan
Silvio Savarese	Stanford University, USA
Konrad Schindler	ETH Zurich, Switzerland
Cordelia Schmid	Inria, France and Google, France
Nicu Sebe	University of Trento, Italy
Fei Sha	University of Southern California, USA
Greg Shakhnarovich	TTI Chicago, USA
Jianbo Shi	University of Pennsylvania, USA
Abhinav Shrivastava	UMD and Google, USA
Yan Shuicheng	National University of Singapore, Singapore
Leonid Sigal	University of British Columbia, Canada
Josef Sivic	Czech Technical University in Prague, Czechia
Arnold Smeulders	University of Amsterdam, The Netherlands
Deqing Sun	NVIDIA, USA
Antonio Torralba	MIT, USA
Zhuowen Tu	University of California, San Diego, USA

Tinne Tuytelaars	KU Leuven, Belgium
Jasper Uijlings	Google, Switzerland
Joost van de Weijer	Computer Vision Center, Spain
Nuno Vasconcelos	University of California, San Diego, USA
Andrea Vedaldi	University of Oxford, UK
Olga Veksler	University of Western Ontario, Canada
Jakob Verbeek	Inria, France
Rene Vidal	Johns Hopkins University, USA
Daphna Weinshall	Hebrew University, Israel
Chris Williams	University of Edinburgh, UK
Lior Wolf	Tel Aviv University, Israel
Ming-Hsuan Yang	University of California at Merced, USA
Todd Zickler	Harvard University, USA
Andrew Zisserman	University of Oxford, UK

Technical Program Committee

Hassan Abu Alhaija	Peter Anderson	Arunava Banerjee
Radhakrishna Achanta	Juan Andrade-Cetto	Atsuhiko Banno
Hanno Ackermann	Mykhaylo Andriluka	Aayush Bansal
Ehsan Adeli	Anelia Angelova	Yingze Bao
Lourdes Agapito	Michel Antunes	Md Jawadul Bappy
Aishwarya Agrawal	Pablo Arbelaez	Pierre Baqué
Antonio Agudo	Vasileios Argyriou	Dániel Baráth
Eirikur Agustsson	Chetan Arora	Adrian Barbu
Karim Ahmed	Federica Arrigoni	Kobus Barnard
Byeongjoo Ahn	Vassilis Athitsos	Nick Barnes
Unaiza Ahsan	Mathieu Aubry	Francisco Barranco
Emre Akbaş	Shai Avidan	Adrien Bartoli
Eren Aksoy	Yannis Avrithis	E. Bayro-Corrochano
Yağız Aksoy	Samaneh Azadi	Paul Beardley
Alexandre Alahi	Hossein Azizpour	Vasileios Belagiannis
Jean-Baptiste Alayrac	Artem Babenko	Sean Bell
Samuel Albanie	Timur Bagautdinov	Ismail Ben
Cenek Albl	Andrew Bagdanov	Boulbaba Ben Amor
Saad Ali	Hessam Bagherinezhad	Gil Ben-Artzi
Rahaf Aljundi	Yuval Bahat	Ohad Ben-Shahar
Jose M. Alvarez	Min Bai	Abhijit Bendale
Humam Alwassel	Qinxun Bai	Rodrigo Benenson
Toshiyuki Amano	Song Bai	Fabian Benitez-Quiroz
Mitsuru Ambai	Xiang Bai	Fethallah Benmansour
Mohamed Amer	Peter Bajcsy	Ryad Benosman
Senjian An	Amr Bakry	Filippo Bergamasco
Cosmin Ancuti	Kavita Bala	David Bermudez

Jesus Bermudez-Cameo	Xun Cao	Erkang Cheng
Leonard Berrada	Yanshuai Cao	Jingchun Cheng
Gedas Bertasius	Joao Carreira	Ming-Ming Cheng
Ross Beveridge	Dan Casas	Wen-Huang Cheng
Lucas Beyer	Daniel Castro	Yuan Cheng
Bir Bhanu	Jan Cech	Anoop Cherian
S. Bhattacharya	M. Emre Celebi	Liang-Tien Chia
Binod Bhattarai	Duygu Ceylan	Naoki Chiba
Arnav Bhavsar	Menglei Chai	Shao-Yi Chien
Simone Bianco	Ayan Chakrabarti	Han-Pang Chiu
Adel Bibi	Rudrasis Chakraborty	Wei-Chen Chiu
Pia Bideau	Shayok Chakraborty	Nam Ik Cho
Josef Bigun	Tat-Jen Cham	Sunghyun Cho
Arijit Biswas	Antonin Chambolle	TaeEun Choe
Soma Biswas	Antoni Chan	Jongmoo Choi
Marten Bjoerkman	Sharat Chandran	Christopher Choy
Volker Blanz	Hyun Sung Chang	Wen-Sheng Chu
Vishnu Boddeti	Ju Yong Chang	Yung-Yu Chuang
Piotr Bojanowski	Xiaojun Chang	Ondrej Chum
Terrance Boulton	Soravit Changpinyo	Joon Son Chung
Yuri Boykov	Wei-Lun Chao	Gökberk Cinbis
Hakan Boyraz	Yu-Wei Chao	James Clark
Eric Brachmann	Visesh Chari	Andrea Cohen
Samarth Brahmabhatt	Rizwan Chaudhry	Forrester Cole
Mathieu Bredif	Siddhartha Chaudhuri	Toby Collins
Francois Bremond	Rama Chellappa	John Collomosse
Michael Brown	Chao Chen	Camille Couprie
Luc Brun	Chen Chen	David Crandall
Shyamal Buch	Cheng Chen	Marco Cristani
Pradeep Buddharaju	Chu-Song Chen	Canton Cristian
Aurelie Bugeau	Guang Chen	James Crowley
Rudy Bunel	Hsin-I Chen	Yin Cui
Xavier Burgos Artizzu	Hwann-Tzong Chen	Zhaopeng Cui
Darius Burschka	Kai Chen	Bo Dai
Andrei Bursuc	Kan Chen	Jifeng Dai
Zoya Bylinskii	Kevin Chen	Qieyun Dai
Fabian Caba	Liang-Chieh Chen	Shengyang Dai
Daniel Cabrini Hauagge	Lin Chen	Yuchao Dai
Cesar Cadena Lerma	Qifeng Chen	Carlo Dal Mutto
Holger Caesar	Ting Chen	Dima Damen
Jianfei Cai	Wei Chen	Zachary Daniels
Junjie Cai	Xi Chen	Kostas Daniilidis
Zhaowei Cai	Xilin Chen	Donald Dansereau
Simone Calderara	Xinlei Chen	Mohamed Daoudi
Neill Campbell	Yingcong Chen	Abhishek Das
Octavia Camps	Yixin Chen	Samyak Datta

Achal Dave	Aykut Erdem	Ryo Furukawa
Shalini De Mello	Erkut Erdem	Yasutaka Furukawa
Teofilo deCampos	Hugo Jair Escalante	Andrea Fusiello
Joseph DeGol	Sergio Escalera	Fatma Güney
Koichiro Deguchi	Victor Escorcía	Raghudeep Gadde
Alessio Del Bue	Francisco Estrada	Silvano Galliani
Stefanie Demirci	Davide Eynard	Orazio Gallo
Jia Deng	Bin Fan	Chuang Gan
Zhiwei Deng	Jialue Fan	Bin-Bin Gao
Joachim Denzler	Quanfu Fan	Jin Gao
Konstantinos Derpanis	Chen Fang	Junbin Gao
Aditya Deshpande	Tian Fang	Ruohan Gao
Alban Desmaison	Yi Fang	Shenghua Gao
Frédéric Devernav	Hany Farid	Animesh Garg
Abhinav Dhall	Giovanni Farinella	Ravi Garg
Michel Dhome	Ryan Farrell	Erik Gartner
Hamdi Dibeklioglu	Alireza Fathi	Simone Gasparin
Mert Dikmen	Christoph Feichtenhofer	Jochen Gast
Cosimo Distante	Wenxin Feng	Leon A. Gatys
Ajay Divakaran	Martin Fergie	Stratis Gavves
Mandar Dixit	Cornelia Fermuller	Liuhaio Ge
Carl Doersch	Basura Fernando	Timnit Gebru
Piotr Dollar	Michael Firman	James Gee
Bo Dong	Bob Fisher	Peter Gehler
Chao Dong	John Fisher	Xin Geng
Huang Dong	Mathew Fisher	Guido Gerig
Jian Dong	Boris Flach	David Geronimo
Jiangxin Dong	Matt Flagg	Bernard Ghanem
Weisheng Dong	Francois Fleuret	Michael Gharbi
Simon Donné	David Fofi	Golnaz Ghiasi
Gianfranco Doretto	Ruth Fong	Spyros Gidaris
Alexey Dosovitskiy	Gian Luca Foresti	Andrew Gilbert
Matthijs Douze	Per-Erik Forssén	Rohit Girdhar
Bruce Draper	David Fouhey	Ioannis Gkioulekas
Bertram Drost	Katerina Fragkiadaki	Georgia Gkioxari
Liang Du	Victor Fragoso	Guy Godin
Shichuan Du	Jan-Michael Frahm	Roland Goecke
Gregory Dudek	Jean-Sebastien Franco	Michael Goesele
Zoran Duric	Ohad Fried	Nuno Goncalves
Pinar Duygulu	Simone Frintrop	Boqing Gong
Hazım Ekenel	Huazhu Fu	Minglun Gong
Tarek El-Gaaly	Yun Fu	Yunchao Gong
Ehsan Elhamifar	Olac Fuentes	Abel Gonzalez-Garcia
Mohamed Elhoseiny	Christopher Funk	Daniel Gordon
Sabu Emmanuel	Thomas Funkhouser	Paulo Gotardo
Ian Endres	Brian Funt	Stephen Gould

Venu Govindu	Wolfgang Heidrich	Evren Imre
Helmut Grabner	Janne Heikkila	Eldar Insafutdinov
Petr Gronat	Jared Heinly	Go Irie
Steve Gu	Mattias Heinrich	Hossam Isack
Josechu Guerrero	Lisa Anne Hendricks	Ahmet Işcen
Anupam Guha	Dan Hendrycks	Daisuke Iwai
Jean-Yves Guillemaut	Stephane Herbin	Hamid Izadinia
Alp Güler	Alexander Hermans	Nathan Jacobs
Erhan Gündoğdu	Luis Herranz	Suyog Jain
Guodong Guo	Aaron Hertzmann	Varun Jampani
Xinqing Guo	Adrian Hilton	C. V. Jawahar
Ankush Gupta	Michael Hirsch	Dinesh Jayaraman
Mohit Gupta	Steven Hoi	Sadeep Jayasumana
Saurabh Gupta	Seunghoon Hong	Laszlo Jeni
Tanmay Gupta	Wei Hong	Hueihan Jhuang
Abner Guzman Rivera	Anthony Hoogs	Dinghuang Ji
Timo Hackel	Radu Horaud	Hui Ji
Sunil Hadap	Yedid Hoshen	Qiang Ji
Christian Haene	Omid Hosseini Jafari	Fan Jia
Ralf Haeusler	Kuang-Jui Hsu	Kui Jia
Levente Hajder	Winston Hsu	Xu Jia
David Hall	Yinlin Hu	Huaizu Jiang
Peter Hall	Zhe Hu	Jiayan Jiang
Stefan Haller	Gang Hua	Nianjuan Jiang
Ghassan Hamarneh	Chen Huang	Tingting Jiang
Fred Hamprecht	De-An Huang	Xiaoyi Jiang
Onur Hamsici	Dong Huang	Yu-Gang Jiang
Bohyung Han	Gary Huang	Long Jin
Junwei Han	Heng Huang	Suo Jinli
Xufeng Han	Jia-Bin Huang	Justin Johnson
Yahong Han	Qixing Huang	Nebojsa Jojic
Ankur Handa	Rui Huang	Michael Jones
Albert Haque	Sheng Huang	Hanbyul Joo
Tatsuya Harada	Weilin Huang	Jungseock Joo
Mehrtash Harandi	Xiaolei Huang	Ajjen Joshi
Bharath Hariharan	Xinyu Huang	Amin Jourabloo
Mahmudul Hasan	Zhiwu Huang	Frederic Jurie
Tal Hassner	Tak-Wai Hui	Achuta Kadambi
Kenji Hata	Wei-Chih Hung	Samuel Kadoury
Soren Hauberg	Junhwa Hur	Ioannis Kakadiaris
Michal Havlena	Mohamed Hussein	Zdenek Kalal
Zeeshan Hayder	Wonjun Hwang	Yannis Kalantidis
Junfeng He	Anders Hyden	Sinan Kalkan
Lei He	Satoshi Ikehata	Vicky Kalogeiton
Varsha Hedau	Nazlı İkizler-Cinbis	Sunkavalli Kalyan
Felix Heide	Viorela Ila	J.-K. Kamarainen

Martin Kampel	Dimitrios Kosmopoulos	Victor Lempitsky
Kenichi Kanatani	Satwik Kottur	Spyridon Leonardos
Angjoo Kanazawa	Balazs Kovacs	Marius Leordeanu
Melih Kandemir	Adarsh Kowdle	Matt Leotta
Sing Bing Kang	Mike Krainin	Thomas Leung
Zhuoliang Kang	Gregory Kramida	Stefan Leutenegger
Mohan Kankanhalli	Ranjay Krishna	Gil Levi
Juho Kannala	Ravi Krishnan	Aviad Levis
Abhishek Kar	Matej Kristan	Jose Lezama
Amlan Kar	Pavel Krsek	Ang Li
Svebor Karaman	Volker Krueger	Dingzeyu Li
Leonid Karlinsky	Alexander Krull	Dong Li
Zoltan Kato	Hilde Kuehne	Haoxiang Li
Parneet Kaur	Andreas Kuhn	Hongdong Li
Hiroshi Kawasaki	Arjan Kuijper	Hongsheng Li
Misha Kazhdan	Zuzana Kukelova	Hongyang Li
Margret Keuper	Kuldeep Kulkarni	Jianguo Li
Sameh Khamis	Shiro Kumano	Kai Li
Naeemullah Khan	Avinash Kumar	Ruiyu Li
Salman Khan	Vijay Kumar	Wei Li
Hadi Kiapour	Abhijit Kundu	Wen Li
Joe Kileel	Sebastian Kurtek	Xi Li
Chanho Kim	Junseok Kwon	Xiaoxiao Li
Gunhee Kim	Jan Kybic	Xin Li
Hansung Kim	Alexander Ladikos	Xirong Li
Junmo Kim	Shang-Hong Lai	Xuelong Li
Junsik Kim	Wei-Sheng Lai	Xueting Li
Kihwan Kim	Jean-Francois Lalonde	Yeqing Li
Minyoung Kim	John Lambert	Yijun Li
Tae Hyun Kim	Zhenzhong Lan	Yin Li
Tae-Kyun Kim	Charis Lanaras	Yingwei Li
Akisato Kimura	Oswald Lanz	Yining Li
Zsolt Kira	Dong Lao	Yongjie Li
Alexander Kirillov	Longin Jan Latecki	Yu-Feng Li
Kris Kitani	Justin Lazarow	Zechao Li
Maria Klodt	Huu Le	Zhengqi Li
Patrick Knöbelreiter	Chen-Yu Lee	Zhenyang Li
Jan Knopp	Gim Hee Lee	Zhizhong Li
Reinhard Koch	Honglak Lee	Xiaodan Liang
Alexander Kolesnikov	Hsin-Ying Lee	Renjie Liao
Chen Kong	Joon-Young Lee	Zicheng Liao
Naejin Kong	Seungyong Lee	Bee Lim
Shu Kong	Stefan Lee	Jongwoo Lim
Piotr Koniusz	Yong Jae Lee	Joseph Lim
Simon Korman	Zhen Lei	Ser-Nam Lim
Andreas Koschan	Ido Leichter	Chen-Hsuan Lin

Shih-Yao Lin	Simon Lucey	Christopher Mei
Tsung-Yi Lin	Jian-Hao Luo	Heydi Mendez-Vazquez
Weiyao Lin	Jiebo Luo	Deyu Meng
Yen-Yu Lin	Pablo Márquez-Neila	Thomas Mensink
Haibin Ling	Matthias Müller	Bjoern Menze
Or Litany	Chao Ma	Domingo Mery
Roe Litman	Chih-Yao Ma	Qiguang Miao
Anan Liu	Lin Ma	Tomer Michaeli
Changsong Liu	Shugao Ma	Antoine Miech
Chen Liu	Wei-Chiu Ma	Ondrej Miksik
Ding Liu	Zhanyu Ma	Anton Milan
Dong Liu	Oisin Mac Aodha	Gregor Miller
Feng Liu	Will Maddern	Cai Minjie
Guangcan Liu	Ludovic Magerand	Majid Mirmehdi
Luoqi Liu	Marcus Magnor	Ishan Misra
Miaomiao Liu	Vijay Mahadevan	Niloy Mitra
Nian Liu	Mohammad Mahoor	Anurag Mittal
Risheng Liu	Michael Maire	Nirbhay Modhe
Shu Liu	Subhransu Maji	Davide Modolo
Shuaicheng Liu	Ameesh Makadia	Pritish Mohapatra
Sifei Liu	Atsuto Maki	Pascal Monasse
Tyng-Luh Liu	Yasushi Makihara	Mathew Monfort
Wanquan Liu	Mateusz Malinowski	Taesup Moon
Weiwei Liu	Tomasz Malisiewicz	Sandino Morales
Xialei Liu	Arun Mallya	Vlad Morariu
Xiaoming Liu	Roberto Manduchi	Philippos Mordohai
Yebin Liu	Junhua Mao	Francesc Moreno
Yiming Liu	Dmitrii Marin	Henrique Morimitsu
Ziwei Liu	Joe Marino	Yael Moses
Zongyi Liu	Kenneth Marino	Ben-Ezra Moshe
Liliana Lo Presti	Elisabeta Marinoiu	Roozbeh Mottaghi
Edgar Lobaton	Ricardo Martin	Yadong Mu
Chengjiang Long	Aleix Martinez	Lopamudra Mukherjee
Mingsheng Long	Julieta Martinez	Mario Munich
Roberto Lopez-Sastre	Aaron Maschinot	Ana Murillo
Amy Loufti	Jonathan Masci	Damien Muselet
Brian Lovell	Bogdan Matei	Armin Mustafa
Canyi Lu	Diana Mateus	Siva Karthik Mustikovela
Cewu Lu	Stefan Mathe	Moin Nabi
Feng Lu	Kevin Matzen	Sobhan Naderi
Huchuan Lu	Bruce Maxwell	Hajime Nagahara
Jiajun Lu	Steve Maybank	Varun Nagaraja
Jiasen Lu	Walterio Mayol-Cuevas	Tushar Nagarajan
Jiwen Lu	Mason McGill	Arsha Nagrani
Yang Lu	Stephen Mckenna	Nikhil Naik
Yujuan Lu	Roey Mechrez	Atsushi Nakazawa

P. J. Narayanan	Hyun Soo Park	Victor Prisacariu
Charlie Nash	In Kyu Park	Jan Prokaj
Lakshmanan Nataraj	Jaesik Park	Nicolas Pugeault
Fabian Nater	Omkar Parkhi	Luis Puig
Lukáš Neumann	Alvaro Parra Bustos	Ali Punjani
Natalia Neverova	C. Alejandro Parraga	Senthil Purushwalkam
Alejandro Newell	Vishal Patel	Guido Pusiol
Phuc Nguyen	Deepak Pathak	Guo-Jun Qi
Xiaohan Nie	Ioannis Patras	Xiaojuan Qi
David Nilsson	Viorica Patraucean	Hongwei Qin
Ko Nishino	Genevieve Patterson	Shi Qiu
Zhenxing Niu	Kim Pedersen	Faisal Qureshi
Shohei Nobuhara	Robert Peharz	Matthias Rütter
Klas Nordberg	Selen Pehlivan	Petia Radeva
Mohammed Norouzi	Xi Peng	Umer Rafi
David Novotny	Bojan Pepik	Rahul Raguram
Ifeoma Nwogu	Talita Perciano	Swaminathan Rahul
Matthew O'Toole	Federico Pernici	Varun Ramakrishna
Guillaume Obozinski	Adrian Peter	Kandan Ramakrishnan
Jean-Marc Odobez	Stavros Petridis	Ravi Ramamoorthi
Eyal Ofek	Vladimir Petrovic	Vignesh Ramanathan
Ferda Ofli	Henning Petzka	Vasili Ramanishka
Tae-Hyun Oh	Tomas Pfister	R. Ramasamy Selvaraju
Iason Oikonomidis	Trung Pham	Rene Ranftl
Takeshi Oishi	Justus Piater	Carolina Raposo
Takahiro Okabe	Massimo Piccardi	Nikhil Rasiwasia
Takayuki Okatani	Sudeep Pillai	Nalini Ratha
Vlad Olaru	Pedro Pinheiro	Sai Ravela
Michael Opitz	Lerrel Pinto	Avinash Ravichandran
Jose Oramas	Bernardo Pires	Ramin Raziperchikolaei
Vicente Ordonez	Aleksis Pirinen	Sylvestre-Alvise Rebuffi
Ivan Oseledets	Fiora Pirri	Adria Recasens
Aljosa Osep	Leonid Pischulin	Joe Redmon
Magnus Oskarsson	Tobias Ploetz	Timo Rehfeld
Martin R. Oswald	Bryan Plummer	Michal Reinstein
Wanli Ouyang	Yair Poleg	Konstantinos Rematas
Andrew Owens	Jean Ponce	Haibing Ren
Mustafa Özuysal	Gerard Pons-Moll	Shaoqing Ren
Jinshan Pan	Jordi Pont-Tuset	Wenqi Ren
Xingang Pan	Alin Popa	Zhile Ren
Rameswar Panda	Fatih Porikli	Hamid Rezatofighi
Sharath Pankanti	Horst Possegger	Nicholas Rhinehart
Julien Pansiot	Viraj Prabhu	Helge Rhodin
Nicolas Papadakis	Andrea Prati	Elisa Ricci
George Papandreou	Maria Priisalu	Eitan Richardson
N. Papanikolopoulos	Véronique Prinet	Stephan Richter

Gernot Riegler	Torsten Sattler	Tianmin Shu
Hayko Riemenschneider	Bogdan Savchynskyy	Zhixin Shu
Tammy Riklin Raviv	Johannes Schönberger	Kaleem Siddiqi
Ergys Ristani	Hanno Scharr	Gunnar Sigurdsson
Tobias Ritschel	Walter Scheirer	Nathan Silberman
Mariano Rivera	Bernt Schiele	Tomas Simon
Samuel Rivera	Frank Schmidt	Abhishek Singh
Antonio Robles-Kelly	Tanner Schmidt	Gautam Singh
Ignacio Rocco	Dirk Schnieders	Maneesh Singh
Jason Rock	Samuel Schuler	Praveer Singh
Emanuele Rodola	William Schwartz	Richa Singh
Mikel Rodriguez	Alexander Schwing	Saurabh Singh
Gregory Rogez	Ozan Sener	Sudipta Sinha
Marcus Rohrbach	Soumyadip Sengupta	Vladimir Smutny
Gemma Roig	Laura Sevilla-Lara	Noah Snively
Javier Romero	Mubarak Shah	Cees Snoek
Olaf Ronneberger	Shishir Shah	Kihyuk Sohn
Amir Rosenfeld	Fahad Shahbaz Khan	Eric Sommerlade
Bodo Rosenhahn	Amir Shahroudy	Sanghyun Son
Guy Rosman	Jing Shao	Bi Song
Arun Ross	Xiaowei Shao	Shiyu Song
Samuel Rota Bulò	Roman Shapovalov	Shuran Song
Peter Roth	Nataliya Shapovalova	Xuan Song
Constantin Rothkopf	Ali Sharif Razavian	Yale Song
Sebastien Roy	Gaurav Sharma	Yang Song
Amit Roy-Chowdhury	Mohit Sharma	Yibing Song
Ognjen Rudovic	Pramod Sharma	Luorenzo Sorgi
Adria Ruiz	Viktoriia Sharmanska	Humberto Sossa
Javier Ruiz-del-Solar	Eli Shechtman	Pratul Srinivasan
Christian Rupprecht	Mark Sheinin	Michael Stark
Olga Russakovsky	Evan Shelhamer	Bjorn Stenger
Chris Russell	Chunhua Shen	Rainer Stiefelwagen
Alexandre Sablayrolles	Li Shen	Joerg Stueckler
Fereshteh Sadeghi	Wei Shen	Jan Stuehmer
Ryusuke Sagawa	Xiaohui Shen	Hang Su
Hideo Saito	Xiaoyong Shen	Hao Su
Elham Sakhaee	Ziyi Shen	Shuochen Su
Albert Ali Salah	Lu Sheng	R. Subramanian
Conrad Sanderson	Baoguang Shi	Yusuke Sugano
Koppal Sanjeev	Boxin Shi	Akihiro Sugimoto
Aswin Sankaranarayanan	Kevin Shih	Baochen Sun
Elham Saraee	Hyunjung Shim	Chen Sun
Jason Saragih	Ilan Shimshoni	Jian Sun
Sudeep Sarkar	Young Min Shin	Jin Sun
Imari Sato	Koichi Shinoda	Lin Sun
Shin'ichi Satoh	Matthew Shreve	Min Sun

Qing Sun	Chetan Tonde	Matthias Vestner
Zhaohui Sun	Xin Tong	Minh Vo
David Suter	Akihiko Torii	Christoph Vogel
Eran Swears	Andrea Torsello	Michele Volpi
Raza Syed Hussain	Florian Trammer	Carl Vondrick
T. Syeda-Mahmood	Du Tran	Sven Wachsmuth
Christian Szegedy	Quoc-Huy Tran	Toshikazu Wada
Duy-Nguyen Ta	Rudolph Triebel	Michael Waechter
Tolga Taşdizen	Alejandro Troccoli	Catherine Wah
Hemant Tagare	Leonardo Trujillo	Jacob Walker
Yuichi Taguchi	Tomasz Trzcinski	Jun Wan
Ying Tai	Sam Tsai	Boyu Wang
Yu-Wing Tai	Yi-Hsuan Tsai	Chen Wang
Jun Takamatsu	Hung-Yu Tseng	Chunyu Wang
Hugues Talbot	Vagia Tsiminaki	De Wang
Toru Tamak	Aggeliki Tsoli	Fang Wang
Robert Tamburo	Wei-Chih Tu	Hongxing Wang
Chaowei Tan	Shubham Tulsiani	Hua Wang
Meng Tang	Fred Tung	Jiang Wang
Peng Tang	Tony Tung	Jingdong Wang
Siyu Tang	Matt Turek	Jinglu Wang
Wei Tang	Oncel Tuzel	Jue Wang
Junli Tao	Georgios Tzimiropoulos	Le Wang
Ran Tao	Ilkay Ulusoy	Lei Wang
Xin Tao	Osman Ulusoy	Lezi Wang
Makarand Tapaswi	Dmitry Ulyanov	Liang Wang
Jean-Philippe Tarel	Paul Upchurch	Lichao Wang
Maxim Tatarchenko	Ben Usman	Lijun Wang
Bugra Tekin	Evgeniya Ustinova	Limin Wang
Demetri Terzopoulos	Himanshu Vajaria	Liwei Wang
Christian Theobalt	Alexander Vakhitov	Naiyan Wang
Diego Thomas	Jack Valmadre	Oliver Wang
Rajat Thomas	Ernest Valveny	Qi Wang
Qi Tian	Jan van Gemert	Ruiping Wang
Xinmei Tian	Grant Van Horn	Shenlong Wang
YingLi Tian	Jagannadan Varadarajan	Shu Wang
Yonghong Tian	Gul Varol	Song Wang
Yonglong Tian	Sebastiano Vascon	Tao Wang
Joseph Tighe	Francisco Vasconcelos	Xiaofang Wang
Radu Timofte	Mayank Vatsa	Xiaolong Wang
Massimo Tistarelli	Javier Vazquez-Corral	Xinchao Wang
Sinisa Todorovic	Ramakrishna Vedantam	Xinggang Wang
Pavel Tokmakov	Ashok Veeraraghavan	Xintao Wang
Giorgos Tolias	Andreas Veit	Yang Wang
Federico Tombari	Raviteja Vemulapalli	Yu-Chiang Frank Wang
Tatiana Tommasi	Jonathan Ventura	Yu-Xiong Wang

Zhaowen Wang	Jin Xie	Michael Ying Yang
Zhe Wang	Lingxi Xie	Ming Yang
Anne Wannenwetsch	Pengtao Xie	Ruiduo Yang
Simon Warfield	Saining Xie	Ruigang Yang
Scott Wehrwein	Wenxuan Xie	Shuo Yang
Donglai Wei	Yuchen Xie	Wei Yang
Ping Wei	Bo Xin	Xiaodong Yang
Shih-En Wei	Junliang Xing	Yanchao Yang
Xiu-Shen Wei	Peng Xingchao	Yi Yang
Yichen Wei	Bo Xiong	Angela Yao
Xie Weidi	Fei Xiong	Bangpeng Yao
Philippe Weinzaepfel	Xuehan Xiong	Cong Yao
Longyin Wen	Yuanjun Xiong	Jian Yao
Eric Wengrowski	Chenliang Xu	Ting Yao
Tomas Werner	Danfei Xu	Julian Yarkony
Michael Wilber	Huijuan Xu	Mark Yatskar
Rick Wildes	Jia Xu	Jinwei Ye
Olivia Wiles	Weipeng Xu	Mao Ye
Kyle Wilson	Xiangyu Xu	Mei-Chen Yeh
David Wipf	Yan Xu	Raymond Yeh
Kwan-Yee Wong	Yuanlu Xu	Serena Yeung
Daniel Worrall	Jia Xue	Kwang Moo Yi
John Wright	Tianfan Xue	Shuai Yi
Baoyuan Wu	Erdem Yörük	Alper Yılmaz
Chao-Yuan Wu	Abhay Yadav	Lijun Yin
Jiajun Wu	Deshraj Yadav	Xi Yin
Jianxin Wu	Payman Yadollahpour	Zhaozheng Yin
Tianfu Wu	Yasushi Yagi	Xianghua Ying
Xiaodong Wu	Toshihiko Yamasaki	Ryo Yonetani
Xiaohe Wu	Fei Yan	Donghyun Yoo
Xinxiao Wu	Hang Yan	Ju Hong Yoon
Yang Wu	Junchi Yan	Kuk-Jin Yoon
Yi Wu	Junjie Yan	Chong You
Ying Wu	Sijie Yan	Shaodi You
Yuxin Wu	Keiji Yanai	Aron Yu
Zheng Wu	Bin Yang	Fisher Yu
Stefanie Wuhrer	Chih-Yuan Yang	Gang Yu
Yin Xia	Dong Yang	Jingyi Yu
Tao Xiang	Herb Yang	Ke Yu
Yu Xiang	Jianchao Yang	Licheng Yu
Lei Xiao	Jianwei Yang	Pei Yu
Tong Xiao	Jiaolong Yang	Qian Yu
Yang Xiao	Jie Yang	Rong Yu
Cihang Xie	Jimei Yang	Shouo-I Yu
Dan Xie	Jufeng Yang	Stella Yu
Jianwen Xie	Linjie Yang	Xiang Yu

Yang Yu	Quanshi Zhang	Guang-Tong Zhou
Zhiding Yu	Richard Zhang	Huiyu Zhou
Ganzhao Yuan	Runze Zhang	Jiahuan Zhou
Jing Yuan	Shanshan Zhang	S. Kevin Zhou
Junsong Yuan	Shiliang Zhang	Tinghui Zhou
Lu Yuan	Shu Zhang	Wengang Zhou
Stefanos Zafeiriou	Ting Zhang	Xiaowei Zhou
Sergey Zagoruyko	Xiangyu Zhang	Xingyi Zhou
Amir Zamir	Xiaofan Zhang	Yin Zhou
K. Zampogiannis	Xu Zhang	Zihan Zhou
Andrei Zanfir	Yimin Zhang	Fan Zhu
Mihai Zanfir	Yinda Zhang	Guangming Zhu
Pablo Zegers	Yongqiang Zhang	Ji Zhu
Eyasu Zemene	Yuting Zhang	Jiejie Zhu
Andy Zeng	Zhanpeng Zhang	Jun-Yan Zhu
Xingyu Zeng	Ziyu Zhang	Shizhan Zhu
Yun Zeng	Bin Zhao	Siyu Zhu
De-Chuan Zhan	Chen Zhao	Xiangxin Zhu
Cheng Zhang	Hang Zhao	Xiatian Zhu
Dong Zhang	Hengshuang Zhao	Yan Zhu
Guofeng Zhang	Qijun Zhao	Yingying Zhu
Han Zhang	Rui Zhao	Yixin Zhu
Hang Zhang	Yue Zhao	Yuke Zhu
Hanwang Zhang	Enliang Zheng	Zhenyao Zhu
Jian Zhang	Liang Zheng	Liansheng Zhuang
Jianguo Zhang	Stephan Zheng	Zeeshan Zia
Jianming Zhang	Wei-Shi Zheng	Karel Zimmermann
Jiawei Zhang	Wenming Zheng	Daniel Zoran
Junping Zhang	Yin Zheng	Danping Zou
Lei Zhang	Yinqiang Zheng	Qi Zou
Linguang Zhang	Yuanjie Zheng	Silvia Zuffi
Ning Zhang	Guangyu Zhong	Wangmeng Zuo
Qing Zhang	Bolei Zhou	Xinxin Zuo

Contents – Part VI

Poster Session

Learning Visual Question Answering by Bootstrapping Hard Attention	3
<i>Mateusz Malinowski, Carl Doersch, Adam Santoro, and Peter Battaglia</i>	
Multi-modal Cycle-Consistent Generalized Zero-Shot Learning	21
<i>Rafael Felix, B. G. Vijay Kumar, Ian Reid, and Gustavo Carneiro</i>	
Key-Word-Aware Network for Referring Expression Image Segmentation . . .	38
<i>Hengcan Shi, Hongliang Li, Fanman Meng, and Qingbo Wu</i>	
A Segmentation-Aware Deep Fusion Network for Compressed Sensing MRI	55
<i>Zhiwen Fan, Liyan Sun, Xinghao Ding, Yue Huang, Congbo Cai, and John Paisley</i>	
Correcting the Triplet Selection Bias for Triplet Loss	71
<i>Baosheng Yu, Tongliang Liu, Mingming Gong, Changxing Ding, and Dacheng Tao</i>	
CrossNet: An End-to-End Reference-Based Super Resolution Network Using Cross-Scale Warping	87
<i>Haitian Zheng, Mengqi Ji, Haoqian Wang, Yebin Liu, and Lu Fang</i>	
Single Image Water Hazard Detection Using FCN with Reflection Attention Units	105
<i>Xiaofeng Han, Chuong Nguyen, Shaodi You, and Jianfeng Lu</i>	
Bidirectional Feature Pyramid Network with Recurrent Attention Residual Modules for Shadow Detection	122
<i>Lei Zhu, Zijun Deng, Xiaowei Hu, Chi-Wing Fu, Xuemiao Xu, Jing Qin, and Pheng-Ann Heng</i>	
Fast Light Field Reconstruction with Deep Coarse-to-Fine Modeling of Spatial-Angular Clues	138
<i>Henry Wing Fung Yeung, Junhui Hou, Jie Chen, Yuk Ying Chung, and Xiaoming Chen</i>	
Image Reassembly Combining Deep Learning and Shortest Path Problem . . .	155
<i>Marie-Morgane Paumard, David Picard, and Hedi Tabia</i>	

BusterNet: Detecting Copy-Move Image Forgery with Source/Target Localization	170
<i>Yue Wu, Wael Abd-Almageed, and Prem Natarajan</i>	
To Learn Image Super-Resolution, Use a GAN to Learn How to Do Image Degradation First.	187
<i>Adrian Bulat, Jing Yang, and Georgios Tzimiropoulos</i>	
FloorNet: A Unified Framework for Floorplan Reconstruction from 3D Scans	203
<i>Chen Liu, Jiaye Wu, and Yasutaka Furukawa</i>	
Transferring GANs: Generating Images from Limited Data	220
<i>Yaxing Wang, Chenshen Wu, Luis Herranz, Joost van de Weijer, Abel Gonzalez-Garcia, and Bogdan Raducanu</i>	
Saliency Preservation in Low-Resolution Grayscale Images	237
<i>Shivanthan Yohanandan, Andy Song, Adrian G. Dyer, and Dacheng Tao</i>	
Proxy Clouds for Live RGB-D Stream Processing and Consolidation	255
<i>Adrien Kaiser, Jose Alonso Ybanez Zepeda, and Tamy Boubekeur</i>	
Deep Metric Learning with Hierarchical Triplet Loss.	272
<i>Weifeng Ge, Weilin Huang, Dengke Dong, and Matthew R. Scott</i>	
Joint Learning of Intrinsic Images and Semantic Segmentation	289
<i>Anil S. Baslamisli, Thomas T. Groenestege, Partha Das, Hoang-An Le, Sezer Karaoglu, and Theo Gevers</i>	
Recurrent Tubelet Proposal and Recognition Networks for Action Detection. . .	306
<i>Dong Li, Zhaofan Qiu, Qi Dai, Ting Yao, and Tao Mei</i>	
Beyond Local Reasoning for Stereo Confidence Estimation with Deep Learning.	323
<i>Fabio Tosi, Matteo Poggi, Antonio Benincasa, and Stefano Mattoccia</i>	
Self-supervised Knowledge Distillation Using Singular Value Decomposition	339
<i>Seung Hyun Lee, Dae Ha Kim, and Byung Cheol Song</i>	
PARN: Pyramidal Affine Regression Networks for Dense Semantic Correspondence.	355
<i>Sangryul Jeon, Seungryong Kim, Dongbo Min, and Kwanghoon Sohn</i>	
Start, Follow, Read: End-to-End Full-Page Handwriting Recognition	372
<i>Curtis Wigington, Chris Tensmeyer, Brian Davis, William Barrett, Brian Price, and Scott Cohen</i>	

PM-GANs: Discriminative Representation Learning for Action Recognition Using Partial-Modalities. 389
Lan Wang, Chenqiang Gao, Luyu Yang, Yue Zhao, Wangmeng Zuo, and Deyu Meng

WildDash - Creating Hazard-Aware Benchmarks 407
Oliver Zendel, Katrin Honauer, Markus Murschitz, Daniel Steininger, and Gustavo Fernández Domínguez

Generative Adversarial Network with Spatial Attention for Face Attribute Editing 422
Gang Zhang, Meina Kan, Shiguang Shan, and Xilin Chen

Realtime Time Synchronized Event-Based Stereo 438
Alex Zihao Zhu, Yibo Chen, and Kostas Daniilidis

OmniDepth: Dense Depth Estimation for Indoors Spherical Panoramas 453
Nikolaos Zioulis, Antonis Karakottas, Dimitrios Zarpalas, and Petros Daras

Simple Baselines for Human Pose Estimation and Tracking 472
Bin Xiao, Haiping Wu, and Yichen Wei

Affine Correspondences Between Central Cameras for Rapid Relative Pose Estimation 488
Iván Eichhardt and Dmitry Chetverikov

ConvNets and ImageNet Beyond Accuracy: Understanding Mistakes and Uncovering Biases 504
Pierre Stock and Moustapha Cisse

RESOUND: Towards Action Recognition Without Representation Bias 520
Yingwei Li, Yi Li, and Nuno Vasconcelos

Integral Human Pose Regression 536
Xiao Sun, Bin Xiao, Fangyin Wei, Shuang Liang, and Yichen Wei

Quadtree Convolutional Neural Networks. 554
Pradeep Kumar Jayaraman, Jianhan Mei, Jianfei Cai, and Jianmin Zheng

Learning to Predict Crisp Boundaries. 570
Ruoxi Deng, Chunhua Shen, Shengjun Liu, Huibing Wang, and Xinru Liu

Image Manipulation with Perceptual Discriminators. 587
Diana Sungatullina, Egor Zakharov, Dmitry Ulyanov, and Victor Lempitsky

Structural Consistency and Controllability for Diverse Colorization 603
Safa Messaoud, David Forsyth, and Alexander G. Schwing

Open Set Learning with Counterfactual Images. 620
Lawrence Neal, Matthew Olson, Xiaoli Fern, Weng-Keen Wong, and Fuxin Li

Human Sensing

Audio-Visual Scene Analysis with Self-Supervised Multisensory Features . . . 639
Andrew Owens and Alexei A. Efros

Jointly Discovering Visual Objects and Spoken Words from Raw Sensory Input 659
David Harwath, Adrià Recasens, Dídac Surís, Galen Chuang, Antonio Torralba, and James Glass

Weakly-Supervised 3D Hand Pose Estimation from Monocular RGB Images. 678
Yujun Cai, Lihao Ge, Jianfei Cai, and Junsong Yuan

DeepIM: Deep Iterative Matching for 6D Pose Estimation 695
Yi Li, Gu Wang, Xiangyang Ji, Yu Xiang, and Dieter Fox

Implicit 3D Orientation Learning for 6D Object Detection from RGB Images. 712
Martin Sundermeyer, Zoltan-Csaba Marton, Maximilian Durner, Manuel Brucker, and Rudolph Triebel

Author Index 731