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# Computer Vision – ECCV 2018

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# 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  
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Chanho Kim	Junseok Kwon	Xiaoxiao Li
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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
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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
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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
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Feng Liu	Will Maddern	Cai Minjie
Guangcan Liu	Ludovic Magerand	Majid Mirmehdi
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Miaomiao Liu	Vijay Mahadevan	Niloy Mitra
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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
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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	Roosbeh Mottaghi
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Yujuan Lu	Roey Mechrez	Atsushi Nakazawa

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Lakshmanan Nataraj	Jaesik Park	Nicolas Pugeault
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Zhenxing Niu	Kim Pedersen	Faisal Qureshi
Shohei Nobuhara	Robert Peharz	Matthias Rüter
Klas Nordberg	Selen Pehlivan	Petia Radeva
Mohammed Norouzi	Xi Peng	Umer Rafi
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Ifeoma Nwogu	Talita Perciano	Swaminathan Rahul
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Eyal Ofek	Vladimir Petrovic	Vignesh Ramanathan
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Takayuki Okatani	Sudeep Pillai	Nalini Ratha
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Ivan Oseledets	Fiora Pirri	Adria Recasens
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Wanli Ouyang	Yair Poleg	Konstantinos Rematas
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Xingang Pan	Alin Popa	Zhile Ren
Rameswar Panda	Fatih Porikli	Hamid Rezatofighi
Sharath Pankanti	Horst Possegger	Nicholas Rhinehart
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Siyu Tang	Matt Turek	Jinglu Wang
Wei Tang	Oncel Tuzel	Jue Wang
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Xin Tao	Osman Ulusoy	Lezi Wang
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Yonghong Tian	Gul Varol	Song Wang
Yonglong Tian	Sebastiano Vascon	Tao Wang
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Radu Timofte	Mayank Vatsa	Xiaolong Wang
Massimo Tistarelli	Javier Vazquez-Corral	Xinchao Wang
Sinisa Todorovic	Ramakrishna Vedantam	Xinggang Wang
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Tomas Werner	Danfei Xu	Julian Yarkony
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Kwan-Yee Wong	Yuanlu Xu	Serena Yeung
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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
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Yang Wu	Junchi Yan	Kuk-Jin Yoon
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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
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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
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Jianming Zhang	Wei-Shi Zheng	Karel Zimmermann
Jiawei Zhang	Wenming Zheng	Daniel Zoran
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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 X

## Poster Session

Bayesian Semantic Instance Segmentation in Open Set World . . . . .	3
<i>Trung Pham, B. G. Vijay Kumar, Thanh-Toan Do, Gustavo Carneiro, and Ian Reid</i>	
BOP: Benchmark for 6D Object Pose Estimation . . . . .	19
<i>Tomáš Hodaň, Frank Michel, Eric Brachmann, Wadim Kehl, Anders Glent Buch, Dirk Kraft, Bertram Drost, Joel Vidal, Stephan Ihrke, Xenophon Zabulis, Caner Sahin, Fabian Manhardt, Federico Tombari, Tae-Kyun Kim, Jiří Matas, and Carsten Rother</i>	
3D Vehicle Trajectory Reconstruction in Monocular Video Data Using Environment Structure Constraints . . . . .	36
<i>Sebastian Bullinger, Christoph Bodensteiner, Michael Arens, and Rainer Stiefelhagen</i>	
Pairwise Body-Part Attention for Recognizing Human-Object Interactions . . .	52
<i>Hao-Shu Fang, Jinkun Cao, Yu-Wing Tai, and Cewu Lu</i>	
Exploiting Temporal Information for 3D Human Pose Estimation . . . . .	69
<i>Mir Rayat Imtiaz Hossain and James J. Little</i>	
Recovering 3D Planes from a Single Image via Convolutional Neural Networks . . . . .	87
<i>Fengting Yang and Zihan Zhou</i>	
stagNet: An Attentive Semantic RNN for Group Activity Recognition . . . . .	104
<i>Mengshi Qi, Jie Qin, Annan Li, Yunhong Wang, Jiebo Luo, and Luc Van Gool</i>	
Learning Class Prototypes via Structure Alignment for Zero-Shot Recognition . . . . .	121
<i>Huajie Jiang, Ruiping Wang, Shiguang Shan, and Xilin Chen</i>	
CurriculumNet: Weakly Supervised Learning from Large-Scale Web Images . . . . .	139
<i>Sheng Guo, Weilin Huang, Haozhi Zhang, Chenfan Zhuang, Dengke Dong, Matthew R. Scott, and Dinglong Huang</i>	



DDRNet: Depth Map Denoising and Refinement for Consumer Depth Cameras Using Cascaded CNNs . . . . .	155
<i>Shi Yan, Chenglei Wu, Lizhen Wang, Feng Xu, Liang An, Kaiwen Guo, and Yebin Liu</i>	
ELEGANT: Exchanging Latent Encodings with GAN for Transferring Multiple Face Attributes. . . . .	172
<i>Taihong Xiao, Jiapeng Hong, and Jinwen Ma</i>	
Dynamic Filtering with Large Sampling Field for ConvNets. . . . .	188
<i>Jialin Wu, Dai Li, Yu Yang, Chandrajit Bajaj, and Xiangyang Ji</i>	
Pose Guided Human Video Generation . . . . .	204
<i>Ceyuan Yang, Zhe Wang, Xinge Zhu, Chen Huang, Jianping Shi, and Dahua Lin</i>	
Characterizing Adversarial Examples Based on Spatial Consistency Information for Semantic Segmentation . . . . .	220
<i>Chaowei Xiao, Ruizhi Deng, Bo Li, Fisher Yu, Mingyan Liu, and Dawn Song</i>	
Joint Task-Recursive Learning for Semantic Segmentation and Depth Estimation . . . . .	238
<i>Zhenyu Zhang, Zhen Cui, Chunyan Xu, Zequn Jie, Xiang Li, and Jian Yang</i>	
Fast, Accurate, and Lightweight Super-Resolution with Cascading Residual Network . . . . .	256
<i>Namhyuk Ahn, Byungkon Kang, and Kyung-Ah Sohn</i>	
ExFuse: Enhancing Feature Fusion for Semantic Segmentation . . . . .	273
<i>Zhenli Zhang, Xiangyu Zhang, Chao Peng, Xiangyang Xue, and Jian Sun</i>	
NetAdapt: Platform-Aware Neural Network Adaptation for Mobile Applications. . . . .	289
<i>Tien-Ju Yang, Andrew Howard, Bo Chen, Xiao Zhang, Alec Go, Mark Sandler, Vivienne Sze, and Hartwig Adam</i>	
Action Anticipation with RBF Kernelized Feature Mapping RNN . . . . .	305
<i>Yuge Shi, Basura Fernando, and Richard Hartley</i>	
A-Contrario Horizon-First Vanishing Point Detection Using Second-Order Grouping Laws. . . . .	323
<i>Gilles Simon, Antoine Fond, and Marie-Odile Berger</i>	
RT-GENE: Real-Time Eye Gaze Estimation in Natural Environments . . . . .	339
<i>Tobias Fischer, Hyung Jin Chang, and Yiannis Demiris</i>	

Unsupervised Class-Specific Deblurring . . . . . 358  
*Nimisha Thekke Madam, Sunil Kumar, and A. N. Rajagopalan*

The Unmanned Aerial Vehicle Benchmark: Object Detection and Tracking . . . 375  
*Dawei Du, Yuankai Qi, Hongyang Yu, Yifan Yang, Kaiwen Duan,  
 Guorong Li, Weigang Zhang, Qingming Huang, and Qi Tian*

Motion Feature Network: Fixed Motion Filter for Action Recognition . . . . . 392  
*Myunggi Lee, Seungeui Lee, Sungjoon Son, Gyutae Park,  
 and Nojun Kwak*

Efficient Sliding Window Computation for NN-Based Template Matching . . . 409  
*Lior Talker, Yael Moses, and Ilan Shimshoni*

ADVIO: An Authentic Dataset for Visual-Inertial Odometry. . . . . 425  
*Santiago Cortés, Arno Solin, Esa Rahtu, and Juho Kannala*

Extending Layered Models to 3D Motion. . . . . 441  
*Dong Lao and Ganesh Sundaramoorthi*

3DMV: Joint 3D-Multi-view Prediction for 3D Semantic  
 Scene Segmentation. . . . . 458  
*Angela Dai and Matthias Nießner*

FishEyeRecNet: A Multi-context Collaborative Deep Network  
 for Fisheye Image Rectification. . . . . 475  
*Xiaoqing Yin, Xinchao Wang, Jun Yu, Maojun Zhang,  
 Pascal Fua, and Dacheng Tao*

LAPRAN: A Scalable Laplacian Pyramid Reconstructive Adversarial  
 Network for Flexible Compressive Sensing Reconstruction. . . . . 491  
*Kai Xu, Zhikang Zhang, and Fengbo Ren*

3D Face Reconstruction from Light Field Images: A Model-Free Approach . . . 508  
*Mingtao Feng, Syed Zulqarnain Gilani, Yaonan Wang, and Ajmal Mian*

“Factual” or “Emotional”: Stylized Image Captioning with Adaptive  
 Learning and Attention . . . . . 527  
*Tianlang Chen, Zhongping Zhang, Quanzeng You, Chen Fang,  
 Zhaowen Wang, Hailin Jin, and Jiebo Luo*

CPlaNet: Enhancing Image Geolocalization by Combinatorial  
 Partitioning of Maps . . . . . 544  
*Paul Hongsuck Seo, Tobias Weyand, Jack Sim, and Bohyung Han*

ESPNet: Efficient Spatial Pyramid of Dilated Convolutions  
 for Semantic Segmentation . . . . . 561  
*Sachin Mehta, Mohammad Rastegari, Anat Caspi,  
 Linda Shapiro, and Hannaneh Hajishirzi*

MVTec D2S: Densely Segmented Supermarket Dataset . . . . .	581
<i>Patrick Follmann, Tobias Böttger, Philipp Härtinger, Rebecca König, and Markus Ulrich</i>	
U-PC: Unsupervised Planogram Compliance . . . . .	598
<i>Archan Ray, Nishant Kumar, Avishek Shaw, and Dipti Prasad Mukherjee</i>	
Recovering Accurate 3D Human Pose in the Wild Using IMUs and a Moving Camera . . . . .	614
<i>Timo von Marcard, Roberto Henschel, Michael J. Black, Bodo Rosenhahn, and Gerard Pons-Moll</i>	
Deep Bilevel Learning . . . . .	632
<i>Simon Jenni and Paolo Favaro</i>	
Joint Optimization for Compressive Video Sensing and Reconstruction Under Hardware Constraints . . . . .	649
<i>Michitaka Yoshida, Akihiko Torii, Masatoshi Okutomi, Kenta Endo, Yukiobu Sugiyama, Rin-ichiro Taniguchi, and Hajime Nagahara</i>	
Deforming Autoencoders: Unsupervised Disentangling of Shape and Appearance . . . . .	664
<i>Zhixin Shu, Mihir Sahasrabudhe, Rıza Alp Güler, Dimitris Samaras, Nikos Paragios, and Iasonas Kokkinos</i>	
ExplainGAN: Model Explanation via Decision Boundary Crossing Transformations . . . . .	681
<i>Pouya Samangouei, Ardavan Saeedi, Liam Nakagawa, and Nathan Silberman</i>	
Does Haze Removal Help CNN-Based Image Classification? . . . . .	697
<i>Yanting Pei, Yaping Huang, Qi Zou, Yuhang Lu, and Song Wang</i>	
Supervising the New with the Old: Learning SFM from SFM . . . . .	713
<i>Maria Klodt and Andrea Vedaldi</i>	
A Dataset and Architecture for Visual Reasoning with a Working Memory . . .	729
<i>Guangyu Robert Yang, Igor Ganiechev, Xiao-Jing Wang, Jonathon Shlens, and David Sussillo</i>	
Constrained Optimization Based Low-Rank Approximation of Deep Neural Networks . . . . .	746
<i>Chong Li and C. J. Richard Shi</i>	

**Human Sensing**

Unsupervised Geometry-Aware Representation for 3D Human Pose Estimation . . . . . 765  
*Helge Rhodin, Mathieu Salzmann, and Pascal Fua*

Dual-Agent Deep Reinforcement Learning for Deformable Face Tracking . . . 783  
*Minghao Guo, Jiwen Lu, and Jie Zhou*

Deep Autoencoder for Combined Human Pose Estimation and Body Model Upscaling. . . . . 800  
*Matthew Trumble, Andrew Gilbert, Adrian Hilton, and John Collomosse*

Occlusion-Aware Hand Pose Estimation Using Hierarchical Mixture Density Network. . . . . 817  
*Qi Ye and Tae-Kyun Kim*

GANimation: Anatomically-Aware Facial Animation from a Single Image . . . 835  
*Albert Pumarola, Antonio Agudo, Aleix M. Martinez, Alberto Sanfeliu, and Francesc Moreno-Noguer*

**Author Index** . . . . . 853