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Pattern Recognition

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Proceedings

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Preface

It was our honor and pleasure to organize the 42nd German Conference on Pattern Recognition (DAGM GCPR 2020), held virtually between September 28th and October 1st, 2020. For the first time, DAGM GCPR was held in parallel with the 25th International Symposium on Vision, Modeling, and Visualization (VMV 2020) and the 10th Eurographics Workshop on Visual Computing for Biology and Medicine (VCBM 2020). All three meetings shared organizational support. DAGM GCPR 2020 had 289 participants from 21 countries.

Originally, DAGM GCPR 2020 was planned to take place in Tübingen, located in central Baden-Württemberg in southwest Germany and home to one of Europe's oldest universities. However, holding the conference in person was not possible due to the COVID-19 pandemic, which placed strict restrictions on travel and meetings. Like many other conferences in 2020, DAGM GCPR was thus held fully virtually.

The call for papers for DAGM GCPR 2020 resulted in 89 submissions from 22 countries. As in previous years, DAGM GCPR 2020 offered special tracks on the topics of Computer vision systems and applications (chaired by Bodo Rosenhahn and Carsten Steger), Pattern recognition in the life- and natural sciences (chaired by Joachim Denzler and Xiaoyi Jiang), and Photogrammetry and remote sensing (chaired by Helmut Mayer and Uwe Sörgel). Each paper was subject to a double-blind review process and was reviewed by three reviewers. One of the reviewers acted as a meta-reviewer for the paper, led the discussion of the paper once all reviews were available, and made a publish/reject recommendation to the Program Chairs. For the special track papers, the track chairs acted as meta reviewers.

As in previous years, DAGM GCPR 2020 also welcomed submissions to the Young Researcher Forum (YRF). The YRF is meant to promote promising young researchers, i.e., students who recently finished their Master, and to provide visibility to them. The requirement for the YRF submissions was that the submission had to be based on a Master thesis, with the Master student being the first author of the submission.

Out of the 89 submissions, 20 papers were submitted to the special tracks (14 submissions for the Computer vision systems and applications track, 5 submissions for the Pattern recognition in the life- and natural sciences track, and 1 submission for the Photogrammetry and remote sensing track) and 7 were submitted to the Young Researcher Forum. The Program Chairs decided to reject 5 submissions before review due to violation of the double-blind review process, missing files, etc. Of the remaining submissions, 35 high-quality papers were selected for publication (39% acceptance rate), with one paper being withdrawn later by the authors due to issues with their funding source. Among these 35 accepted papers, 5 were YRF submissions. 4 papers were chosen for oral sessions held jointly with the other two meetings, 10 were selected as DAGM GCPR orals, and 21 were selected for spotlight presentations. All accepted papers were presented live via talks given by one of their authors. These talks were

live-streamed on YouTube and remain publicly accessible there. Discussions took place after the sessions through the Discord platform.

Overall, the accepted papers covered a wide spectrum of topics from the areas of pattern recognition, machine learning, image processing, and computer vision. Among the accepted non-YRF papers, 5 papers were nominated for the GCPR best paper award. The papers were selected based on the scores provided by the reviewers and meta-reviewers. A committee consisting of two Program Chairs and four meta-reviewers of the nominated papers selected the best paper and two honorable mentions among the 5 nominees.

Besides the accepted papers, which were presented in a single-track program, DAGM GCPR 2020 featured a day of invited talks and three keynotes, the latter of which were shared with the other two meetings. We are thankful to the seven internationally renowned researchers who accepted our invitations to give invited talks: Matthias Bethge (University of Tübingen, Germany), Sabine Süsstrunk (EPFL, Switzerland), Vittorio Ferrari (Google, Switzerland), Bernt Schiele (MPI, Germany), Siyu Tang (ETH Zurich, Switzerland), Christoph Lampert (IST Austria, Austria), and Davide Scaramuzza (University of Zurich, Switzerland). The keynote talks were given by Vladlen Koltun (Intel), Jan Kautz (NVIDIA), and Hans-Christian Hege (Zuse Institute Berlin). In addition, DAGM GCPR 2020 provided two industry talks, which were delivered by Michael Hirsch (Amazon) and Alexey Dosovitskiy (Google AI Brain).

The success of DAGM GCPR 2020 would have been impossible without the efforts and support of many people and institutions. We thank all the authors for their submissions to DAGM GCPR 2020 and all the reviewers for their commitment and quality of work. We also like to thank our sponsors Amazon (Gold Sponsor), Google (Bronze Sponsor), KAUST (Academic Sponsor), Daimler (Best Paper/Award Sponsor), MVTec Software GmbH (Best Paper/Award Sponsor), and COGNEX (Best Paper/Award Sponsor). We are very grateful for the support from our partners, Eberhard Karls Universität Tübingen, Informatik Forum Stuttgart, Deutsche Arbeitsgemeinschaft für Mustererkennung e.V. (DAGM), and Gesellschaft für Informatik. Special thanks go to all the organizers and the technical team supporting the three meetings. All credit for making DAGM GCPR a successful virtual conference on short notice goes to them. Additionally, we are grateful to Springer for giving us the opportunity to continue publishing the DAGM GCPR proceedings as part of their LNCS series and for a special issue of IJCV dedicated to the best papers from the conference.

As a reader, we hope you will enjoy the proceedings of DAGM GCPR 2020. We hope to see you again at the next DAGM GCPR in Bonn.

October 2020

Zeynep Akata
Andreas Geiger
Torsten Sattler

Organization

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Technical Team

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Aditya Prakash
Jules Kreuer
Alexander Phi. Goetz
Tim Beckmann

Awards

GCPR Paper Awards

GCPR Best Paper Award

Bias Detection and Prediction of Mapping Errors in Camera Calibration

Annika Hagemann	Robert Bosch GmbH, Germany; Karlsruhe Institute of Technology, Germany
Moritz Knorr	Robert Bosch GmbH, Germany
Holger Janssen	Robert Bosch GmbH, Germany
Christoph Stiller	Karlsruhe Institute of Technology, Germany

GCPR Honorable Mention

Learning to Identify Physical Parameters from Video Using Differentiable Physics

Rama Krishna Kandukuri	Max Planck Institute for Intelligent Systems, Germany; University of Siegen, Germany
Jan Achterhold	Max Planck Institute for Intelligent Systems, Germany
Michael Moeller	University of Siegen, Germany
Joerg Stueckler	Max Planck Institute for Intelligent Systems, Germany

Characterizing the Role of a Single Coupling Layer in Affine Normalizing Flow

Felix Draxler	Heidelberg University, Germany
Jonathan Schwarz	Heidelberg University, Germany
Christoph Schnörr	Heidelberg University, Germany
Ullrich Köthe	Heidelberg University, Germany

DAGM Awards

DAGM German Pattern Recognition Award 2020

Matthias Nießner, TU Munich, for his pioneering research on tracking, reconstructing and visualizing photorealistic 3D face models from video with machine learning and AI.

DAGM MVTec Dissertation Award 2020

Robust Methods for Dense Monocular Non-Rigid 3D Reconstruction and Alignment of Point Clouds

Vladislav Golyanik Technical University of Kaiserslautern, Germany

DAGM YRF Best Master's Thesis Award 2020

Synthesizing Human Pose from Captions

Yifei Zhang RWTH Aachen University, Germany

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