ICIAP 2019 conference proceedings

October 2, 2019

The conference traditionally covers both classic and the most recent trends in image processing, computer vision, and pattern recognition, addressing both theoretical and applicative aspects, promoting connections and synergies among senior scholars and students, universities, research institutes, and companies.

The 2019 International Conference on Image Analysis and Processing, ICIAP 2019, was the 20th edition of a series of conferences promoted biennially by the Italian Member Society (CVPL) of the International Association for Pattern Recognition (IAPR).

General Chairs: Oswald Lanz (Fondazione Bruno Kessler, Italy); Stefano Messelodi (Fondazione Bruno Kessler, Italy); Nicu Sebe (University of Trento, Italy).

Program Chairs: Elisa Ricci (University of Trento & Fondazione Bruno Kessler, Italy); Samuel Rota Bulò (Mapillary Research, Austria); Cees Snoek (University of Amsterdam, The Netherlands).

The conference held in Trento was organized by The Vision and Learning joint Laboratory (VLL) which is a collaborative effort between Fondazione Bruno Kessler and the Department of Computer Science of the University of Trento. Moreover, ICIAP 2019 was endorsed by the International Association for Pattern Recognition (IAPR), the Italian Member Society of IAPR (CVPL), and received the institutional support of the University of Trento and the Fondazione Bruno Kessler.

The program was subdivided into 10 main topics, covering a broad range of scientific areas, which were managed by two-three area chairs per each topic. They were: Video Analysis and Understanding; Pattern Recognition & Machine Learning; Deep Learning; Multiview Geometry and 3D Computer Vision; Multimedia; Image Analysis, Detection and Recognition; Biomedical and Assistive Technology; Digital Forensics; Image processing for Cultural Heritage; and Brave New Ideas.

Moreover, we hosted 4 workshops, 5 tutorials and an industrial session in which several prominent companies as well as start-ups were presenting their activities with respect to the cutting-edge research in their respective areas.

The organized tutorials were:

- "Vision, Language and Action: from Captioning to Embodied AI" by Lorenzo Baraldi, Marcella Cornia, and Massimiliano Corsini;
- "Transferring Knowledge Across Domains: an Introduction to Deep Domain Adaptation" by Massimiliano Mancini and Pietro Morerio;
- "Probabilistic and deep learning for regression in computer vision" by Xavier Alameda-Pineda and Stéphane Lathuilière;
- "Anomaly Detection in Images" by Giacomo Boracchi and Diego Carrera;
- "High-Dynamic-Range imaging: improvements and limits" by Alessandro Rizzi.

The hosted four half- or full-day satellite workshops were:

- "Pattern Recognition for Cultural Heritage (PatReCH 2019)" organized by Francesco Fontanella, Mario Molinara, and Filippo Stanco;
- "Deep Understanding of Shopper Behaviours and Interactions in Intelligent Retail Environment" organized by Emanuele Frontoni, Sebastiano Battiato, Cosimo Distante, Marina Paolanti, Luigi di Stefano, Giovanni Maria Farinella, Anette Wolfrath, and Primo Zingaretti;
- "BioFor Workshop on Recent Advances in Digital Security: Biometrics and Forensic" organized by Daniel Riccio, Chang-Tsun Li, Francesco Marra, and Diego Gragnaniello;
- "eHealth in the Big Data and Deep Learning Era" organized by Tanmoy Chakraborty, Stefano Marrone, and Giancarlo Sperli.

IThe workshop papers were all collected in a separate volume of the LNCS series by Springer (Vol. 11808). We thank all the workshop organizers and tutorial speakers who made possible such an interesting pre-conference program.

ICIAP 2019 received 207 paper submissions coming from 21 countries.
The paper review process was managed by the program chairs with the invaluable support of 21 area chairs, together with the Program Committee and a number of additional reviewers. The peer-review selection process was carried out by three distinct reviewers in most cases. This led to the selection of 117 high-quality manuscripts, 18 oral presentations, 18 spotlights and 99 posters (each spotlight was also presented as a poster), with an overall acceptance rate of 56.5% (8.7% for oral presentations). All accepted papers were collected into the ICIAP 2019 Proceedings published by Springer as two volumes in the LNCS series (Vol. 11751-11752).

The program also included 4 invited talks by distinguished scientists in computer vision, pattern recognition and image analysis. We enjoyed the plenary lectures of Davide Scaramuzza (University of Zurich and ETH, Switzerland), Ayellet Tal (Technion, Israel), Emanuele Rodolà (Sapienza University of Rome, Italy) and Alessandra Sciutti (Instituto Italiano di Tecnologia, Italy) all of whom addressed very interesting and recent research approaches and paradigms, such as vision-controlled drones, computer vision for archeology, 3D and spectral geometry and cognitive vision for human robot interaction. The keynote of Davide Scaramuzza and one of the oral sessions were organized in conjunction with the 13th International Conference on Smart Distributed Cameras (ICDSC 2019).

Several awards were conferred during ICIAP 2019.

- The "Eduardo Caianiello" Award supported by Springer and IAPR was assigned after a careful selection made by an appointed committee. The award was attributed to the best paper authored or co-authored by at least one young researcher (PhD student, postdoc, or similar). This was

assigned to the paper "RE-OBJ: Jointly learning the foreground and background for object instance re-identification" co-authored by Vaibhav Bansal, Stuart James, and Alessio Del Bue.

- Best Paper Award supported by Springer and IAPR was assigned after a careful selection made by an appointed committee. This award was named in the memory of Professor Alfredo Petrosino. The winner was the article "Tackling Partial Domain Adaptation with Self-Supervision" co-authored by Silvia Bucci, Antonio D'Innocente, and Tatiana Tommasi.

Also a special mention was given to the following works:

- "Domain Adaptation for Privacy-preserving Pedestrian Detection in Thermal Imagery", My Kieu, Andrew D. Bagdanov, Marco Bertini, and Alberto Del Bimbo.

- "Regularized Evolutionary Algorithm for Dynamic Neural Topology Search", Cristiano Saltori, Subhankar Roy, Nicu Sebe, and Giovanni Iacca.

Acknowledgements

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