

Preface

Computational forensics is an emerging research domain concerned with the investigation of forensic problems using computational methods. The primary goal is to use different computational frameworks for the discovery and advancement of forensic knowledge and the establishment of forensic findings with scientific rigor. Computational forensics refers to the specific discipline that involves computational modeling, simulation, analysis, and recognition in studying and solving forensic problems.

During the last decade, many researchers and practitioners have been attracted to this discipline and have formed several research groups. The International Association for Pattern Recognition (IAPR) has also formed a similar group under its Technical Committee-6. This group aims to further promote research, development, and education in computation forensics, and to provide a platform for cooperation and exchange for researchers, practitioners, and teachers from the various disciplines of computational and forensic sciences. The International Workshop on Computational Forensics (IWCF) is one such platform for nurturing recent areas of research in computational forensics. The workshop has been organized regularly since 2007 and addresses different areas of forensic sciences. The sixth version of this event aimed at dealing with the forensic analysis of documents.

The workshop was organized with the 22nd International Conference on Pattern Recognition (ICPR) in Stockholm, Sweden. The event was held as a single-track, full-day workshop on August 24, 2014. The workshop focused on the use of pattern recognition principles for forged document analysis both in hard copy and digital medium. Analysis of handwriting or signature, detection of change in original documents, writer/speaker identification and verification, and copyright violation were some of the areas of emphasis. Efforts were made to bring researchers together who work on these issues in different areas including document and speech processing, music analysis, digital security, forensic sciences, etc.

The 6th IWCF received an overwhelming response from related academic groups and industry practitioners. The preparation of the workshop started as soon as the proposal was accepted by the ICPR Workshop Committee. Abstracts for 23 papers were registered and 18 full papers were submitted. After a rigorous review process, 13 papers from research groups in ten different countries were accepted for presentation at the workshop. Paul Lahmi, CEO of Send Only Oked Documents (SOOD), France, delivered the workshop keynote address and the workshop invited talk was delivered by IAPR TC-10 Chair Jean-Marc Ogier.

For the first time, there was a call for holding a shared task in IWCF. One research group from Malaysia responded to this call and organized a competition on Recognition of Android Malware Patterns (RAMP). Several groups registered to participate in this shared task and one group finally submitted their results. A special session, the discussion forum, was organized in the workshop. The session was chaired by the IAPR TC-6 Vice Chair Marcus Liwicky. Participants who attended the workshop

without any papers or talks were initially given the chance to present their research or products by making brief presentations. Later discussions identified niche areas of computational forensics on which collaboration among different groups was discussed. The preparation of sharable data and systems was emphasized.

After the workshop, authors of selected contributions were invited to submit expanded versions of their papers for this edited volume. The authors were encouraged to include the ideas and suggestions that arose during the discussions at the workshop. Thus, this volume contains reviewed and improved versions of papers presented at IWCF 2014. We intend to give a snapshot of state-of-the-art research in the field of computational forensics.

It should be noted that because of some unavoidable reasons, the proceedings of IWCF 2012 were not published on time. Therefore, the authors of the papers presented at IWCF 2012 were also invited to submit their extended and updated work to be included in this edited volume. Hence, this volume can be considered as the joint proceedings of the 5th and 6th IWCF. Altogether, this volume contains 17 papers; 12 from IWCF 2014 and the rest from IWCF 2012. The papers are divided into three broad areas, namely, biometrics, document inspection, and applications.

Finally, we would like to sincerely thank those who helped to ensure IWCF 2014 was a success: Kim Boyer (Past President, IAPR), Simone Marinai (2nd Vice President, IAPR), Apostolos Antonacopoulos (IAPR Treasurer), Cris Luengo and Ola Friman (ICPR 2014 Workshop Co-chairs), and other ICPR organizers for their generous support; the members of the IWCF Program Committee for reviewing and commenting on all of the submitted papers; IAPR for its sponsorship of the workshop. Our sincere thanks to Katrin Franke, Gjøvik University College, Norway; Mario Koeppen, Kyushu Institute of Technology, Japan; and Andre Arnes, Gjøvik University College, Norway – the workshop chairs of the 5th IWCF 2012.

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