

Preface

The following are the Proceedings of the First International Workshop on Biometrics (BIOMET 2014), held in Sofia, Bulgaria, during June 23–24, 2014. This initiative is part of the FP7 Capacity Programme project AComIn (Advanced Computing for Innovation) of the Institute of Information and Communication Technologies at Bulgarian Academy of Sciences (IICT-BAS). Besides, the Workshop was organized with the active participation of key members of the European COST Action IC1106 (Integrating Biometrics and Forensics for the Digital Age). Another scientific community that cooperated in the organization of the Workshop is the Technical Committee on Biometrics of the GIRPR (Group of Italian Researchers in Pattern Recognition) as well as the Computer Vision and Multimedia Laboratory (CVML) of the University of Pavia (Italy).

BIOMET 2014 is intended to provide a forum to present the current work and new ideas in this challenging field. It renovates and continues the Biometrics tradition (2007–2010) of the CompSysTech International Conferences, one of the longest running international conferences in computer science in Bulgaria that started in 2000. At the same time, BIOMET 2014 is primarily connected with the goals of the IICT-BAS's AComIn project (<http://www.iict.bas.bg/acomin>) to disseminate recent advances in Biometrics among the research groups and companies in Bulgaria and Balkan countries as well.

The Workshop consisted of a pilot phase of four invited lectures, from renowned world experts, on the state of the art of the Workshop's main thematic, and suggesting possible synergies between different modalities and strategies, stressing links and outlining open questions. In detail, the four basic thematic were given by Mark Nixon ("On Semantic Soft-Biometric Labels"), Andrzej Drygajlo ("From Speaker Recognition to Forensic Speaker Recognition"), Massimo Tistarelli ("Biometrics in Forensic Science: Challenges, Lessons and New Technologies"), and Chang-Tsun Li ("People Identification and Tracking Through Fusion of Face and Gait Features"). Besides these advances, seven special sessions were organized in conjunction with the workshop submissions in order to fathom a few selected topics of current interest: Gait and behavior analysis; Iris analysis and eye tracking; Voice recognition and speech analysis; 3D ear recognition; Face and facial attributes analysis; Handwriting and signature recognition; Multimodal and soft biometrics. The volume's Table of Contents varies somewhat from the scheduled Workshop program, to accommodate the various positions that emerged as significant contributions in the paper discussions and from the debates.

The Workshop raised considerable interest among researchers from different fields, and this volume has emerged from an intense and careful reviewing process which perfected the highly qualified papers submitted. The good number of contributions concerning real-world applications attests to the field's maturity.

Besides the four invited papers, further 17 papers were presented at the Workshop, and the number of participants and listeners topped 30, half of them from Bulgaria, as well as from Italy, the UK, Cyprus, Finland, Saudi Arabia, etc. A paper from Iran was

also presented *in absentia*. For young participants in the Workshop, the GIRPR offered a best student paper award to promote their contributions, give them opportunities to interact with senior colleagues, and sustain our initiative. In recognition of the originality of his research, the quality of his presentation and contribution to the development of biometrics, the award was conferred on Atanas Nikolov, a PhD student in the Institute for Information and Communication Technology of the Bulgarian Academy of Sciences.

Face, voice, fingerprint, and signature recognition were the main inspiration and driving forces behind the practical application of authentication and identification processes. Presently, new challenges are arising from areas like the iris but also gait and the ear considered with both 2D and 3D data are increasingly being investigated. But very often, it is the merging of a subset of these sources that comes to be considered even in practical applications, naturally paying careful attention to meeting computational demands. Multimodal approaches may improve authentication and identification through more effectiveness, provided that the different modes are combined synergistically. Nevertheless, how to integrate the different modes is still a subject for research. We expect that research regarding these topics will increase rapidly. On the whole, these proceedings represent the latest results from both academia and industry and address challenging topics in the field.

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