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Introduction

Positive and reliable automatic identification of humans is a very important topic in a number of law enforcement (e.g., criminal investigation), government (e.g., border control), and commercial (e.g., logical and physical access control) applications. Surrogate representations of identity such as passwords and physical tokens fail to provide a satisfactory level of security in the current electronic era. Biometrics-based authentication techniques utilize physical and behavioral characteristics of individuals (such as fingerprint, iris, and voice) to either verify a claimed identity (biometric verification) or establish the identity of an individual (biometric identification). With increased emphasis on security, there is a growing and urgent need to automatically identify humans both locally and remotely on a routine basis.

The purpose of this conference was to provide a scientific forum for researchers, engineers, system architects, and designers to report recent advances in this important area of human identification using biometrics. The papers presented at this year's conference spanned a variety of biometrics topics with specific emphasis on face recognition and fingerprint recognition topics, which accounted for about half of all the papers. Other topics included hand, signature, ear, eye, and behavioral biometrics as well as statistical methods in fusion.

We were fortunate to have two keynote addresses by prominent figures in the biometrics community. Prof. Josef Kittler of the University of Surrey spoke on the topic of "Quality dependent fusion of intramodal and multimodal biometric experts". Dr. Lawrence Nadel of Noblis, Inc. spoke on the topic of "Biometric identification: a holistic perspective". Biometric systems are being deployed today in real world applications at an unprecedented rate. Industry and academic experts participated in a panel discussion on the timely topic of "Real World Biometrics Deployments". Mr. Daniel B. Nickell, Dr. Robert K. Rowe, and Dr. Marios Savvides, discussed examples of real world biometrics applications, lessons learnt, and challenges that need to be overcome to further accelerate biometrics deployments. This expert panel provided thought provoking insights as well as motivation to researchers and system engineers alike to design biometric systems that are more accurate, robust against attacks, user friendly, and cost effective.

This was the fourth edition of the Biometrics conference hosted by SPIE. The conference has a history of rigorous peer-review, and we are grateful to the researchers for submitting high quality papers. The conference required the authors to submit a six page manuscript for peer review purposes. The program committee comprised of twenty–four area experts and each paper was

reviewed by two or more experts. We are indebted to the program committee members for providing detailed comments on the submitted papers. We are also thankful to the SPIE staff for their remarkable assistance in organizing the conference. We hope you enjoy reading the compilation of technical papers in this publication.

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