Handbook Of Iris Recognition

Handbook of Iris RecognitionIris RecognitionHandbook of Iris RecognitionEncyclopedia of BiometricsHandbook of BiometricsHandbook of Remote BiometricsThe Science of BiometricsState of the art in BiometricsIris Analysis for Biometric Recognition SystemsAdvanced Research on Industry, Information System and Material Engineering, IISME2012Reliability of Iris Recognition as a Means of Identity Verification and Future Impact on Transportation Worker Identification CredentialInvestigation of Iris Recognition in the Visible SpectrumProceedings of the Multi-Conference 2011An Investigation of Iris Recognition in Unconstrained EnvironmentsIris and Periocular Biometric RecognitionJournal of the Royal Society, InterfaceIris BiometricsEnhanced Iris Recognition System For Person IdentificationAudio- and Video-based Biometric Person AuthenticationSwarm Intelligence for Iris Recognition Mark J. Burge Fouad Sabry Mark J. Burge Stan Z. Li Anil K. Jain Massimo Tistarelli Ravindra Das Jucheng Yang Rajesh M. Bodade Helen Zhang Petru Radu Himanshu B. Soni Richard Bonner Christian Rathgeb Christian Rathgeb Gaganpreet Kaur Zaheera Zainal Abidin

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this authoritative collection introduces the reader to the state of the art in iris recognition technology topics and features with a foreword by the father of iris recognition professor john daugman of cambridge university presents work from an international selection of preeminent researchers reflecting the uses of iris recognition in many different social contexts provides viewpoints from researchers in government industry and academia highlighting how iris recognition is both a thriving industry and an active research area surveys previous developments in the field and covers topics ranging from the low level e g physics of iris image acquisition to the high level e g alternative non daugman approaches to iris matching introduces many active and open areas of research in iris recognition including cross wavelength matching and iris template aging this book is an essential resource for anyone wishing to improve their understanding of iris recognition technology

what is iris recognition iris recognition is an automated method of biometric identification that uses mathematical pattern recognition techniques on video images

of one or both of the irises of an individual s eyes whose complex patterns are unique stable and can be seen from some distance the discriminating powers of all biometric technologies depend on the amount of entropy they are able to encode and use in matching iris recognition is exceptional in this regard enabling the avoidance of collisions even in cross comparisons across massive populations its major limitation is that image acquisition from distances greater than a meter or two or without cooperation can be very difficult however the technology is in development and iris recognition can be accomplished from even up to 10 meters away or in a live camera feed how you will benefit i insights and validations about the following topics chapter 1 iris recognition chapter 2 retinal scan chapter 3 john daugman chapter 4 biometric points chapter 5 eye vein verification chapter 6 biometric device chapter 7 private biometrics chapter 8 aadhaar chapter 9 biometrics in schools chapter 10 aadhaar act ii answering the public top questions about iris recognition iii real world examples for the usage of iris recognition in many fields who this book is for professionals undergraduate and graduate students enthusiasts hobbyists and those who want to go beyond basic knowledge or information for any kind of iris recognition

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with an a z format this encyclopedia provides easy access to relevant information on all aspects of biometrics it features approximately 250 overview entries and 800 definitional entries each entry includes a definition key words list of synonyms list of related entries illustration s applications and a bibliography most entries include useful literature references providing the reader with a portal to more detailed information

biometrics is a rapidly evolving field with applications ranging from accessing one s computer to gaining entry into a country the deployment of large scale biometric systems in both commercial and government applications has increased public awareness of this technology recent years have seen significant growth in biometric research resulting in the development of innovative sensors new algorithms enhanced test methodologies and novel applications this book addresses this void by inviting some of the prominent researchers in biometrics to contribute chapters describing the fundamentals as well as the latest innovations in their respective areas of expertise

the development of technologies for the identi cation of individuals has driven the interest and curiosity of many people spearheaded and inspired by the bertillon coding system for the classi cation of humans based on physical measurements scientists and engineers have been trying to invent new devices and classi cation systems to capture the human identity from its body measurements one of the main limitations of the precursors of today s biometrics which is still present in the vast majority of the existing biometric systems has been the need to keep the device in close contact with

the subject to capture the biometric measurements this clearly limits the applicability and convenience of biometric systems this book presents an important step in addressing this limitation by describing a number of methodologies to capture meaningful biometric information from a distance most materials covered in this book have been presented at the international summer school on biometrics which is held every year in alghero italy and which has become a agship activity of the iapr technical committee on biometrics iapr tc4 the last four chapters of the book are derived from some of the best p sentations by the participating students of the school the educational value of this book is also highlighted by the number of proposed exercises and questions which will help the reader to better understand the proposed topics

the science of biometrics security technology for identity verification covers the technical aspects of iris and facial recognition focusing primarily on the mathematical and statistical algorithms that run the verification and identification processes in these two modalities each chapter begins with a review of the technologies examining how they work their advantages and disadvantages as well as some of their established market applications numerous approaches are examined facial recognition is much more of an emerging biometric technology than iris recognition therefore there are more algorithms that are currently being developed in that area after this review numerous applications of these two modalities are covered as well some of which have just been commercially deployed while others are under research and development chapters 3 and 4 conclude with case studies to provide further application review this book is directed to security managers electronic security system designers consultants and system integrators as well as electronic security system manufacturers working in access control and biometrics

biometric recognition is one of the most widely studied problems in computer science the use of biometrics techniques such as face fingerprints iris and ears is a solution for obtaining a secure personal identification however the old biometrics identification techniques are out of date this goal of this book is to provide the reader with the most up to date research performed in biometric recognition and descript some novel methods of biometrics emphasis on the state of the art skills the book consists of 15 chapters each focusing on a most up to date issue the chapters are divided into five sections fingerprint recognition face recognition iris recognition other biometrics and biometrics security the book was reviewed by editors dr jucheng yang and dr loris nanni we deeply appreciate the efforts of our guest editors dr girija chetty dr norman poh dr jianjiang feng dr dongsun park and dr sook yoon as well as a number of anonymous reviewers

the book presents three most significant areas in biometrics and pattern recognition a step by step approach for design and implementation of dual tree complex wavelet transform dtcwt plus rotated complex wavelet filters rcwf is discussed in detail in addition to the above the book provides detailed analysis of iris images and two methods of iris segmentation it also discusses simplified study of some subspace based methods and distance measures for iris recognition backed by empirical studies and statistical success verifications

selected peer reviewed papers from the 2012 second international conference on industry information system and material engineering iisme 2012 march 17 18 2012 wuhan china

the department of homeland security is deploying the transportation worker identification credential twic to u s ports to help ensure only authorized individuals

having undergone background checks have access to secure areas congress mandated the twic have a biometric authenticator dhs chose fingerprints this thesis argues iris scanning is a better choice because of the nature of the maritime environment and because iris scanning is a more accurate biometric this thesis also argues there are social factors affecting a biometric enabled identification card which must be considered for the program to be successful to investigate the issue of biometrics and the twic this thesis performed a field study of an iris scanner a survey of biometric attitudes and interviews with members of the pma and the ilwu the iris study operated the scanner in an identification mode experiencing no false acceptances and few false rejects however it found the scanner sensitive to sun position with respect to the subject the pilot study of attitudes found subjects supportive of biometrics in scenarios currently requiring positive identification but opposing them when it would create new requirements for identification both pilot studies were impacted by an inability to provide an incentive to study subjects

the international conference on signals systems and automation icssa 2011 aims to spread awareness in the research and academic community regarding cutting edge technological advancements revolutionizing the world the main emphasis of this conference is on dissemination of information experience and research results on the current topics of interest through in depth discussions and participation of researchers from all over the world the objective is to provide a platform to scientists research scholars and industrialists for interacting and exchanging ideas in a number of research areas this will facilitate communication among researchers in different fields of electronics and communication engineering the international conference on intelligent system and data processing icisd 2011 is organized to address various issues that will foster the creation of intelligent solutions in the future the primary goal of the conference is to bring together worldwide leading researchers developers practitioners and educators interested in advancing the state of the art in computational intelligence and data processing for exchanging knowledge that encompasses a broad range of disciplines among various distinct communities another goal is to promote scientific information interchange between researchers developers engineers students and practitioners working in india and abroad

this book covers iris and periocular recognition a prominent field in biometrics recognition and identity science in the areas of security computing and communications research and technologies selected topics cover a wide spectrum of current research focusing on periocular recognition to augment the biometric performance of the iris in unconstrained environments paving the way for multi spectral biometric recognition on mobile devices divided into three parts this text covers the most recent research and future directions as well as security related topics

iris biometrics from segmentation to template security provides critical analysis challenges and solutions on recent iris biometric research topics including image segmentation image compression watermarking advanced comparators template protection and more open source software is also provided on a dedicated website which includes feature extraction segmentation and matching schemes applied in this book to foster scientific exchange current state of the art approaches accompanied by comprehensive experimental evaluations are presented as well this book has been designed as a secondary text book or reference for researchers and advanced level students in computer science and electrical engineering professionals working in this related field will also find this book useful as a reference

in the present work many methods are combined to build a reliable and fast method for feature extraction in iris recognition system reliable techniques for iris image enhancement and circle detection are used these techniques can then be used to facilitate the further study of the statistics of iris also a program coding with matlab going through all the stages of the iris recognition is built it is helpful to understand the procedures of iris recognition and demonstrate the key issues of iris recognition the hamming distance has been employed for classification of iris templates and two templates have been found to match if a test of statistical independence failed the system performed with perfect recognition and resulted in false accepts and false reject rates of 0 01 and 0 61 respectively the accuracy of the system is found to be 99 38 therefore iris recognition is reliable and accurate biometric technology

iris recognition is one of the highest accuracy techniques used in biometric systems the accuracy of the iris recognition system is measured by false reject rate frr which measures the authenticity of a user who is incorrectly rejected by the system due to changes in iris features such as aging and health condition and external factors that affect iris image for instance high noise rate external factors such as technical fault occlusion and source of lighting that causes the image acquisition to produce distorted iris images create error hence are incorrectly rejected by the biometric system frr can be reduced using wavelets and gabor filters cascaded classifiers ordinal measures multiple biometric modalities and a selection of unique iris features nonetheless in the long duration of the matching process existing methods were unable to identify the authenticity of the user since the iris structure itself produces a template changed due to aging in fact the iris consists of unique features such as crypts furrows collarette pigment blotches freckles and pupils that are distinguishable among humans earlier research was done by selecting unique iris features however these had low accuracy levels a new way of identifying and matching the iris template using the nature inspired algorithm is described in this book it provides an overview of iris recognition that is based on nature inspired environment technology the book is useful for students from universities polytechnics community colleges practitioners and industry practitioners

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