

Christoph Busch

List of Publications by Year in descending order

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425
papers

7,775
citations

136950
32
h-index

144013
57
g-index

444
all docs

444
docs citations

444
times ranked

3292
citing authors

#	ARTICLE	IF	CITATIONS
1	Unobtrusive User-Authentication on Mobile Phones Using Biometric Gait Recognition. , 2010, , .		238
2	Presentation Attack Detection Methods for Face Recognition Systems. ACM Computing Surveys, 2018, 50, 1-37.	23.0	199
3	Presentation attack detection methods for fingerprint recognition systems: a survey. IET Biometrics, 2014, 3, 219-233.	2.5	183
4	Ear biometrics: a survey of detection, feature extraction and recognition methods. IET Biometrics, 2012, 1, 114.	2.5	165
5	Presentation Attack Detection for Face Recognition Using Light Field Camera. IEEE Transactions on Image Processing, 2015, 24, 1060-1075.	9.8	146
6	Face Recognition Systems Under Morphing Attacks: A Survey. IEEE Access, 2019, 7, 23012-23026.	4.2	143
7	General Framework to Evaluate Unlinkability in Biometric Template Protection Systems. IEEE Transactions on Information Forensics and Security, 2018, 13, 1406-1420.	6.9	142
8	Smartphone based visible iris recognition using deep sparse filtering. Pattern Recognition Letters, 2015, 57, 33-42.	4.2	137
9	On application of bloom filters to iris biometrics. IET Biometrics, 2014, 3, 207-218.	2.5	121
10	Demographic Bias in Biometrics: A Survey on an Emerging Challenge. IEEE Transactions on Technology and Society, 2020, 1, 89-103.	3.2	119
11	Integer DCT-based reversible watermarking for images using companding technique. , 2004, , .		99
12	Multi-biometric template protection based on bloom filters. Information Fusion, 2018, 42, 37-50.	19.1	98
13	Robust Scheme for Iris Presentation Attack Detection Using Multiscale Binarized Statistical Image Features. IEEE Transactions on Information Forensics and Security, 2015, 10, 703-715.	6.9	97
14	Transferable Deep-CNN Features for Detecting Digital and Print-Scanned Morphed Face Images. , 2017, , .		97
15	Authentication of Smartphone Users Based on the Way They Walk Using k-NN Algorithm. , 2012, , .		92
16	Digital watermarking: from concepts to real-time video applications. IEEE Computer Graphics and Applications, 1999, 19, 25-35.	1.2	88
17	Detecting morphed face images. , 2016, , .		85
18	Unlinkable and irreversible biometric template protection based on bloom filters. Information Sciences, 2016, 370-371, 18-32.	6.9	84

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19	Using Hidden Markov Models for accelerometer-based biometric gait recognition. , 2011, , .		82
20	On the vulnerability of face recognition systems towards morphed face attacks. , 2017, , .		79
21	Towards Blind Detection of Robust Watermarks in Polygonal Models. Computer Graphics Forum, 2000, 19, 199-208.	3.0	77
22	Reversible watermarking of 2D-vector data. , 2004, , .		77
23	Novel image fusion scheme based on dependency measure for robust multispectral palmprint recognition. Pattern Recognition, 2014, 47, 2205-2221.	8.1	77
24	Cancelable multi-biometrics: Mixing iris-codes based on adaptive bloom filters. Computers and Security, 2014, 42, 1-12.	6.0	77
25	Biometric Systems under Morphing Attacks: Assessment of Morphing Techniques and Vulnerability Reporting. , 2017, , .		74
26	Dynamic random projection for biometric template protection. , 2010, , .		71
27	Fake Face Detection Methods: Can They Be Generalized?. , 2018, , .		68
28	Deep Face Representations for Differential Morphing Attack Detection. IEEE Transactions on Information Forensics and Security, 2020, 15, 3625-3639.	6.9	68
29	Detection of Face Morphing Attacks Based on PRNU Analysis. IEEE Transactions on Biometrics, Behavior, and Identity Science, 2019, 1, 302-317.	4.4	67
30	Biometric Presentation Attack Detection: Beyond the Visible Spectrum. IEEE Transactions on Information Forensics and Security, 2020, 15, 1261-1275.	6.9	65
31	Wavelet transform for analyzing fog visibility. IEEE Intelligent Systems, 1998, 13, 66-71.	0.2	64
32	Face morphing versus face averaging: Vulnerability and detection. , 2017, , .		61
33	Preserving privacy in speaker and speech characterisation. Computer Speech and Language, 2019, 58, 441-480.	4.3	59
34	Multi-modal authentication system for smartphones using face, iris and periocular. , 2015, , .		54
35	Face Morphing Attack Generation and Detection: A Comprehensive Survey. IEEE Transactions on Technology and Society, 2021, 2, 128-145.	3.2	54
36	Towards Detection of Morphed Face Images in Electronic Travel Documents. , 2018, , .		51

#	ARTICLE	IF	CITATIONS
37	MIPGAN“Generating Strong and High Quality Morphing Attacks Using Identity Prior Driven GAN. IEEE Transactions on Biometrics, Behavior, and Identity Science, 2021, 3, 365-383.	4.4	49
38	Protected Facial Biometric Templates Based on Local Gabor Patterns and Adaptive Bloom Filters. , 2014, , .		47
39	Impact and Detection of Facial Beautification in Face Recognition: An Overview. IEEE Access, 2019, 7, 152667-152678.	4.2	46
40	Biometric template protection. Datenschutz Und Datensicherheit - DuD, 2009, 33, 299-304.	0.4	43
41	An overview of touchless 2D fingerprint recognition. Eurasip Journal on Image and Video Processing, 2021, 2021, .	2.6	43
42	Criteria towards metrics for benchmarking template protection algorithms. , 2012, , .		42
43	Comprehensive analysis of spectral minutiae for vein pattern recognition. IET Biometrics, 2012, 1, 25.	2.5	41
44	Towards cancelable multi-biometrics based on bloom filters: a case study on feature level fusion of face and iris. , 2015, , .		41
45	Finger vein liveness detection using motion magnification. , 2015, , .		41
46	Fingerprint Recognition with Embedded Cameras on Mobile Phones. Lecture Notes of the Institute for Computer Sciences, Social-Informatics and Telecommunications Engineering, 2012, , 136-147.	0.3	40
47	Exploring the Usefulness of Light Field Cameras for Biometrics: An Empirical Study on Face and Iris Recognition. IEEE Transactions on Information Forensics and Security, 2016, 11, 922-936.	6.9	40
48	PRNU-based detection of morphed face images. , 2018, , .		40
49	Can GAN Generated Morphs Threaten Face Recognition Systems Equally as Landmark Based Morphs? - Vulnerability and Detection. , 2020, , .		40
50	A low-cost multimodal biometric sensor to capture finger vein and fingerprint. , 2014, , .		39
51	A comparative study on texture and surface descriptors for ear biometrics. , 2014, , .		39
52	ContlensNet: Robust Iris Contact Lens Detection Using Deep Convolutional Neural Networks. , 2017, , .		39
53	Cross-Eyed - Cross-Spectral Iris/Periocular Recognition Database and Competition. , 2016, , .		37
54	Finger image quality assessment features “ definitions and evaluation. IET Biometrics, 2016, 5, 47-64.	2.5	37

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55	Binarized statistical features for improved iris and periocular recognition in visible spectrum. , 2014, , .		36
56	Face Image Quality Assessment: A Literature Survey. ACM Computing Surveys, 2022, 54, 1-49.	23.0	36
57	A new perspective — Face recognition with light-field camera. , 2013, , .		35
58	Video Presentation Attack Detection in Visible Spectrum Iris Recognition Using Magnified Phase Information. IEEE Transactions on Information Forensics and Security, 2015, 10, 2048-2056.	6.9	35
59	Parameterized geometric alignment for minutiae-based fingerprint template protection. , 2009, , .		34
60	Multi-Biometric Template Protection: Issues and Challenges. , 0, , .		34
61	Scenario test of accelerometer-based biometric gait recognition. , 2011, , .		33
62	Scaling-robust fingerprint verification with smartphone camera in real-life scenarios. , 2013, , .		33
63	Morphing Attack Detection-Database, Evaluation Platform, and Benchmarking. IEEE Transactions on Information Forensics and Security, 2021, 16, 4336-4351.	6.9	33
64	Quantifying privacy and security of biometric fuzzy commitment. , 2011, , .		32
65	Classifying accelerometer data via hidden Markov models to authenticate people by the way they walk. IEEE Aerospace and Electronic Systems Magazine, 2013, 28, 29-35.	1.3	32
66	Detecting Morphed Face Images Using Facial Landmarks. Lecture Notes in Computer Science, 2018, , 444-452.	1.3	32
67	<title>Feature-based watermarking of 2D vector data</title>. , 2003, , .		31
68	Assessing face image quality for smartphone based face recognition system. , 2017, , .		31
69	<title>Watermarking 2D-vector data for geographical information systems</title>. , 2002, , .		30
70	Fingerprint Presentation Attack Detection Based on Local Features Encoding for Unknown Attacks. IEEE Access, 2021, 9, 5806-5820.	4.2	30
71	Wavelet based texture segmentation of multi-modal tomographic images. Computers and Graphics, 1997, 21, 347-358.	2.5	29
72	Combining Iris and Periocular Recognition Using Light Field Camera. , 2013, , .		29

#	ARTICLE	IF	CITATIONS
73	Learning deeply coupled autoencoders for smartphone based periocular verification. , 2016, , .		29
74	On the vulnerability of extended Multispectral face recognition systems towards presentation attacks. , 2017, , .		29
75	PRNU-based detection of facial retouching. IET Biometrics, 2020, 9, 154-164.	2.5	29
76	Presentation Attack Detection Algorithms for Finger Vein Biometrics: A Comprehensive Study. , 2015, , .		27
77	Enhancing Breeder Document Long-Term Security Using Blockchain Technology. , 2017, , .		27
78	Cross-eyed 2017: Cross-spectral iris/periocular recognition competition. , 2017, , .		27
79	Renewable Minutiae Templates with Tunable Size and Security. , 2010, , .		26
80	Biometric template protection for speaker recognition based on universal background models. IET Biometrics, 2015, 4, 116-126.	2.5	26
81	Is your biometric system robust to morphing attacks?. , 2017, , .		26
82	Survey on the impact of fingerprint image enhancement. IET Biometrics, 2018, 7, 102-115.	2.5	26
83	Texture based features for robust palmprint recognition: a comparative study. Eurasip Journal on Information Security, 2015, 2015, .	2.2	25
84	Morph Deterction from Single Face Image. , 2018, , .		25
85	Morphed Face Detection Based on Deep Color Residual Noise. , 2019, , .		25
86	Computational workload in biometric identification systems: an overview. IET Biometrics, 2019, 8, 351-368.	2.5	25
87	Pseudo Identities Based on Fingerprint Characteristics. , 2008, , .		24
88	Spectral minutiae for vein pattern recognition. , 2011, , .		24
89	Robustness of Quality-based Score Calibration of Speaker Recognition Systems with respect to low-SNR and short-duration conditions. , 0, , .		24
90	mvHash-B - A New Approach for Similarity Preserving Hashing. , 2013, , .		23

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91	PRNU Variance Analysis for Morphed Face Image Detection. , 2018, , .		23
92	Towards making Morphing Attack Detection robust using hybrid Scale-Space Colour Texture Features. , 2019, , .		23
93	TherISuRNet - A Computationally Efficient Thermal Image Super-Resolution Network. , 2020, , .		23
94	Transferable deep convolutional neural network features for fingervein presentation attack detection. , 2017, , .		22
95	Performance variation of morphed face image detection algorithms across different datasets. , 2018, , .		22
96	Unsupervised Single Image Super-Resolution Network (USISResNet) for Real-World Data Using Generative Adversarial Network. , 2020, , .		22
97	Detecting Morphed Face Attacks Using Residual Noise from Deep Multi-scale Context Aggregation Network. , 2020, , .		22
98	Self-Organizing Maps for Fingerprint Image Quality Assessment. , 2013, , .		21
99	Collaborative representation of deep sparse filtered features for robust verification of smartphone periocular images. , 2016, , .		21
100	Multi-patch deep sparse histograms for iris recognition in visible spectrum using collaborative subspace for robust verification. Pattern Recognition Letters, 2017, 91, 27-36.	4.2	21
101	Towards Fingerprint Presentation Attack Detection Based on Convolutional Neural Networks and Short Wave Infrared Imaging. , 2018, , .		21
102	Feature extraction from vein images using spatial information and chain codes. Information Security Technical Report, 2012, 17, 26-35.	1.3	20
103	Towards generating protected fingerprint templates based on bloom filters. , 2015, , .		20
104	Unlinkable improved multi-biometric iris fuzzy vault. Eurasip Journal on Information Security, 2016, 2016, .	2.2	20
105	On the feasibility of creating morphed iris-codes. , 2017, , .		20
106	Fingerprint Presentation Attack Detection using Laser Speckle Contrast Imaging. , 2018, , .		20
107	Robust minutiae hash for fingerprint template protection. Proceedings of SPIE, 2010, , .	0.8	19
108	Benchmarking the performance of SVMs and HMMs for accelerometer-based biometric gait recognition. , 2011, , .		19

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109	Gabor filters as candidate quality measure for NFIQ 2.0. , 2012, , .		19
110	Comparative evaluation of super-resolution techniques for multi-face recognition using light-field camera. , 2013, , .		19
111	Design and Development of Low-Cost Sensor to Capture Ventral and Dorsal Finger Vein for Biometric Authentication. IEEE Sensors Journal, 2019, 19, 6102-6111.	4.7	19
112	Differential Detection of Facial Retouching: A Multi-Biometric Approach. IEEE Access, 2020, 8, 106373-106385.	4.2	19
113	Anomaly Detection With Convolutional Autoencoders for Fingerprint Presentation Attack Detection. IEEE Transactions on Biometrics, Behavior, and Identity Science, 2021, 3, 190-202.	4.4	19
114	Presentation attack detection on visible spectrum iris recognition by exploring inherent characteristics of Light Field Camera. , 2014, , .		18
115	A low cost wrist vein sensor for biometric authentication. , 2016, , .		18
116	Verifying the Newborns without Infection Risks Using Contactless Palmprints. , 2018, , .		18
117	Custom silicone Face Masks: Vulnerability of Commercial Face Recognition Systems & Presentation Attack Detection. , 2019, , .		18
118	Single Image Face Morphing Attack Detection Using Ensemble of Features. , 2020, , .		18
119	Low Visual Distortion and Robust Morphing Attacks Based on Partial Face Image Manipulation. IEEE Transactions on Biometrics, Behavior, and Identity Science, 2021, 3, 72-88.	4.4	18
120	Mobile Contactless Fingerprint Recognition: Implementation, Performance and Usability Aspects. Sensors, 2022, 22, 792.	3.8	18
121	2D ear classification based on unsupervised clustering. , 2014, , .		17
122	Exploring dorsal finger vein pattern for robust person recognition. , 2015, , .		17
123	Direct Unsupervised Super-Resolution Using Generative Adversarial Network (DUS-GAN) for Real-World Data. IEEE Transactions on Image Processing, 2021, 30, 8251-8264.	9.8	17
124	Audio-Visual Biometric Recognition and Presentation Attack Detection: A Comprehensive Survey. IEEE Access, 2021, 9, 37431-37455.	4.2	17
125	Robust iris recognition using light-field camera. , 2013, , .		16
126	Automatic Face Quality Assessment from Video Using Gray Level Co-occurrence Matrix: An Empirical Study on Automatic Border Control System. , 2014, , .		16

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127	Channel Split Convolutional Neural Network (ChaSNet) for Thermal Image Super-Resolution. , 2021, , .		16
128	Approaching optimal value expansion for reversible watermarking. , 2005, , .		15
129	Classifying accelerometer data via Hidden Markov Models to authenticate people by the way they walk. , 2011, , .		15
130	Context-Aware Mobile Biometric Authentication based on Support Vector Machines. , 2013, , .		15
131	Presentation attack detection using Laplacian decomposed frequency response for visible spectrum and Near-Infra-Red iris systems. , 2015, , .		15
132	De-convolutional auto-encoder for enhancement of fingerprint samples. , 2016, , .		15
133	Biometric Authentication Protocols on Smartphones. , 2016, , .		15
134	On the Detection of GAN-Based Face Morphs Using Established Morph Detectors. Lecture Notes in Computer Science, 2019, , 345-356.	1.3	15
135	Face morph detection for unknown morphing algorithms and image sources: a multi-scale block local binary pattern fusion approach. IET Biometrics, 2020, 9, 278-289.	2.5	15
136	Iris Liveness Detection Using a Cascade of Dedicated Deep Learning Networks. IEEE Transactions on Information Forensics and Security, 2022, 17, 42-52.	6.9	15
137	Why Vein Recognition Needs Privacy Protection. , 2009, , .		14
138	3D face reconstruction and multimodal person identification from video captured using smartphone camera. , 2013, , .		14
139	Ensemble of Statistically Independent Filters for Robust Contact Lens Detection in Iris Images. , 2014, , .		14
140	Smartphone based robust iris recognition in visible spectrum using clustered K-means features. , 2014, , .		14
141	Privacy-Preserving Indexing of Iris-Codes with Cancelable Bloom Filter-based Search Structures. , 2018, , .		14
142	Benchmarking Binarisation Schemes for Deep Face Templates. , 2018, , .		14
143	Collaborative representation of blur invariant deep sparse features for periocular recognition from smartphones. Image and Vision Computing, 2020, 101, 103979.	4.5	14
144	On the Applicability of Synthetic Data for Face Recognition. , 2021, , .		14

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145	Deep learning-based single image face depth data enhancement. Computer Vision and Image Understanding, 2021, 210, 103247.	4.7	14
146	High-capacity reversible watermarking for 2D vector data. , 2005, 5681, 409.		13
147	Multi-face Recognition at a Distance Using Light-Field Camera. , 2013, , .		13
148	Vocabulary harmonisation for biometrics: the development of ISO/IEC 2382 Part 37. IET Biometrics, 2014, 3, 1-8.	2.5	13
149	Novel finger vascular pattern imaging device for robust biometric verification. , 2014, , .		13
150	Biometric template protection based on Bloom filters and honey templates. IET Biometrics, 2017, 6, 19-26.	2.5	13
151	Bloom filter-based search structures for indexing and retrieving iris-codes. IET Biometrics, 2018, 7, 260-268.	2.5	13
152	Template Protection based on Homomorphic Encryption: Computationally Efficient Application to Iris-Biometric Verification and Identification. , 2019, , .		13
153	Presentation Attack Detection for Finger Recognition. Advances in Computer Vision and Pattern Recognition, 2020, , 435-463.	1.3	13
154	Makeup Presentation Attacks: Review and Detection Performance Benchmark. IEEE Access, 2020, 8, 224958-224973.	4.2	13
155	Homomorphic Encryption for Speaker Recognition: Protection of Biometric Templates and Vendor Model Parameters. , 0, , .		13
156	Feature Correlation Attack on Biometric Privacy Protection Schemes. , 2009, , .		12
157	Convolution approach for feature detection in topological skeletons obtained from vascular patterns. , 2011, , .		12
158	Extended multispectral face presentation attack detection: An approach based on fusing information from individual spectral bands. , 2017, , .		12
159	Robust Verification With Subsurface Fingerprint Recognition Using Full Field Optical Coherence Tomography. , 2017, , .		12
160	Deep expectation for estimation of fingerprint orientation fields. , 2017, , .		12
161	Improved ear verification after surgery - An approach based on collaborative representation of locally competitive features. Pattern Recognition, 2018, 83, 416-429.	8.1	12
162	Multi-Modal Fingerprint Presentation Attack Detection: Analysing the Surface and the Inside. , 2019, , .		12

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163	Thermal Image Super-Resolution Challenge - PBVS 2020. , 2020, , .		12
164	Feature Fusion Methods for Indexing and Retrieval of Biometric Data: Application to Face Recognition With Privacy Protection. IEEE Access, 2021, 9, 139361-139378.	4.2	12
165	Fuzzy Vault for 3D Face Recognition Systems. , 2008, , .		11
166	Robust palmprint verification using sparse representation of binarized statistical features. , 2014, , .		11
167	A score-level fusion fingerprint indexing approach based on minutiae vicinity and minutia cylinder-code. , 2014, , .		11
168	Predicting the vulnerability of biometric systems to attacks based on morphed biometric information. IET Biometrics, 2018, 7, 333-341.	2.5	11
169	Light Fields for Face Analysis. Sensors, 2019, 19, 2687.	3.8	11
170	Subjective Evaluation of Media Consumer Vulnerability to Fake Audiovisual Content. , 2019, , .		11
171	Multi-Biometric Identification With Cascading Database Filtering. IEEE Transactions on Biometrics, Behavior, and Identity Science, 2020, 2, 210-222.	4.4	11
172	The I4U Mega Fusion and Collaboration for NIST Speaker Recognition Evaluation 2016. , 0, , .		11
173	A Security Analysis of Biometric Template Protection Schemes. Lecture Notes in Computer Science, 2009, , 429-438.	1.3	10
174	Retrieving secrets from iris fuzzy commitment. , 2012, , .		10
175	Ear Detection in 3D Profile Images Based on Surface Curvature. , 2012, , .		10
176	Vein minutia cylinder-codes (V-MCC). , 2013, , .		10
177	Quality Assessment for Fingerprints Collected by Smartphone Cameras. , 2013, , .		10
178	Detecting fingerprint alterations by orientation field and minutiae orientation analysis. , 2014, , .		10
179	An efficient finger vein indexing scheme based on unsupervised clustering. , 2015, , .		10
180	Hand dorsal vein recognition: Sensor, algorithms and evaluation. , 2015, , .		10

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181	Preventing the cross-matching attack in Bloom filter-based cancelable biometrics. , 2015, , .		10
182	Multi-biometric template protection “ A security analysis of binarized statistical features for bloom filters on smartphones. , 2016, , .		10
183	Cross-spectrum periocular authentication for NIR and visible images using bank of statistical filters. , 2016, , .		10
184	Visible Wavelength Iris Segmentation: A Multi-Class Approach using Fully Convolutional Neuronal Networks. , 2018, , .		10
185	Towards Multi-modal Finger Presentation Attack Detection. , 2018, , .		10
186	Detection of Glasses in Near-Infrared Ocular Images. , 2018, , .		10
187	Robust Morph-Detection at Automated Border Control Gate Using Deep Decomposed 3D Shape & Diffuse Reflectance. , 2019, , .		10
188	Relevant features for gender classification in NIR periocular images. IET Biometrics, 2019, 8, 340-350.	2.5	10
189	Deep Face Age Progression: A Survey. IEEE Access, 2021, 9, 83376-83393.	4.2	10
190	On the Influence of Ageing on Face Morph Attacks: Vulnerability and Detection. , 2020, , .		10
191	Cross-sensor periocular biometrics in a global pandemic: Comparative benchmark and novel multialgorithmic approach. Information Fusion, 2022, 83-84, 110-130.	19.1	10
192	<title>Digital watermarking for the protection of music scores</title>. , 2001, 4314, 85.		9
193	Biometric Systems and Data Protection Legislation in Germany. , 2008, , .		9
194	Performance Evaluation of Fusing Protected Fingerprint Minutiae Templates on the Decision Level. Sensors, 2012, 12, 5246-5272.	3.8	9
195	Novel presentation attack detection algorithm for face recognition system: Application to 3D face mask attack. , 2014, , .		9
196	Quality of fingerprint scans captured using Optical Coherence Tomography. , 2014, , .		9
197	Fingerprint skin moisture impact on biometric performance. , 2015, , .		9
198	Improved Fuzzy Vault Scheme for Alignment-Free Fingerprint Features. , 2015, , .		9

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199	Color Adaptive Quantized Patterns for Presentation Attack Detection in Ocular Biometric Systems. , 2016, , .		9
200	The Influence of Fingerprint Image Degradations on the Performance of Biometric System and Quality Assessment. , 2016, , .		9
201	Face Presentation Attack Detection by Exploring Spectral Signatures. , 2017, , .		9
202	Towards Protected and Cancelable Multi-Spectral Face Templates Using Feature Fusion and Kernalized Hashing. , 2018, , .		9
203	Multi-spectral Imaging for Robust Ocular Biometrics. , 2018, , .		9
204	Privacy-preserving PLDA speaker verification using outsourced secure computation. Speech Communication, 2019, 114, 60-71.	2.8	9
205	Cross-Spectral Periocular Recognition by Cascaded Spectral Image Transformation. , 2019, , .		9
206	Semantic Segmentation of Periocular Near-Infra-Red Eye Images Under Alcohol Effects. IEEE Access, 2021, 9, 109732-109744.	4.2	9
207	ConvNet Regression for Fingerprint Orientations. Lecture Notes in Computer Science, 2017, , 325-336.	1.3	9
208	Single Morphing Attack Detection Using Feature Selection and Visualization Based on Mutual Information. IEEE Access, 2021, 9, 167628-167641.	4.2	9
209	Morphological Operations for Color-Coded Images. Computer Graphics Forum, 1995, 14, 193-204.	3.0	8
210	Feature-Level Fusion of Iris and Face for Personal Identification. Lecture Notes in Computer Science, 2009, , 356-364.	1.3	8
211	GUC100 Multi-scanner Fingerprint Database for In-House (Semi-public) Performance and Interoperability Evaluation. , 2010, , .		8
212	Robust localization of ears by feature level fusion and context information. , 2013, , .		8
213	A novel approach used for measuring fingerprint orientation of arch fingerprint. , 2014, , .		8
214	A Fingerprint Indexing Scheme with Robustness against Sample Translation and Rotation. , 2015, , .		8
215	Iris imaging in visible spectrum using white LED. , 2015, , .		8
216	Improving fingerprint alteration detection. , 2015, , .		8

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217	Finger vein indexing based on binary features. , 2015, , .		8
218	Presentation Attack Detection in Face Biometric Systems Using Raw Sensor Data from Smartphones. , 2016, , .		8
219	Effects of image compression on ear biometrics. IET Biometrics, 2016, 5, 252-261.	2.5	8
220	Ear recognition after ear lobe surgery: A preliminary study. , 2016, , .		8
221	Presentation Attack Detection for Smartphone Based Fingerphoto Recognition Using Second Order Local Structures. , 2018, , .		8
222	A Taxonomy of Audiovisual Fake Multimedia Content Creation Technology. , 2018, , .		8
223	SIFT-based iris recognition revisited: prerequisites, advantages and improvements. Pattern Analysis and Applications, 2019, 22, 889-906.	4.6	8
224	On the generalisation capabilities of Fisher vectorâ€¢based face presentation attack detection. IET Biometrics, 2021, 10, 480-496.	2.5	8
225	Multi-Bit Allocation: Preparing Voice Biometrics for Template Protection. , 0, , .		8
226	E2F-GAN: Eyes-to-Face Inpainting via Edge-Aware Coarse-to-Fine GANs. IEEE Access, 2022, 10, 32406-32417.	4.2	8
227	<title>Video watermarking resistance to rotation, scaling, and translation</title>. , 2002, 4675, 512.		7
228	Facing the future of biometrics. EMBO Reports, 2006, 7, S23-5.	4.5	7
229	Multimodal Biometric Recognition Based on Complex KFDA. , 2009, , .		7
230	Collecting fingerprints for recognition using mobile phone cameras. , 2012, , .		7
231	Bridging Gaps: An application of feature warping to online signature verification. , 2014, , .		7
232	Cloud Password Manager Using Privacy-Preserved Biometrics. , 2014, , .		7
233	TripleA: Accelerated accuracy-preserving alignment for iris-codes. , 2016, , .		7
234	A Binarization Scheme for Face Recognition Based on Multi-Scale Block Local Binary Patterns. , 2016, , .		7

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235	Robust transgender face recognition: Approach based on appearance and therapy factors. , 2016, , .		7
236	Scale-level score fusion of steered pyramid features for cross-spectral periocular verification. , 2017, , .		7
237	On the Impact of Different Fabrication Materials on Fingerprint Presentation Attack Detection. , 2019, , .		7
238	Detecting Face Morphing Attacks with Collaborative Representation of Steerable Features. Advances in Intelligent Systems and Computing, 2020, , 255-265.	0.6	7
239	Adversarial Attacks on Face Recognition Systems. Advances in Computer Vision and Pattern Recognition, 2022, , 139-161.	1.3	7
240	Cumulant-based image fingerprints. , 2005, , .		6
241	Integer-DCT-based reversible image watermarking by adaptive coefficient modification. , 2005, 5681, 218.		6
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