***Тепловизионные измерения на лице (биомедицинские приложения)***

1. Баша Н.С. Методическое обеспечение верификации личности по индивидуальным особенностям сосудистого рисунка и геометрическим пропорциям лица человека в естественных условиях. Автореф. дис. … канд. техн. наук. Дубна, 2013. 23 с.
2. Баша Н.С., Шульга Л.А. Система выделения подкожного кровеносного рисунка по термографическим изображениям // Вестник МГТУ им. Н.Э. Баумана. Сер. «Естественные науки». 2012. 2: 98-106.
3. Знаменская И.А., Коротеева Е.Ю., Хахалин А.В. и др. Термографическая визуализация и анализ изображений динамических процессов в области лица // Вестник Московского ун-та, сер. 3. Физика, Астрономия. 2017, 3: 88-93.
4. Знаменская И.А., Коротеева Е.Ю., Хахалин А.В., Шишаков В.В. Термографическая визуализация и дистанционный анализ изображений динамических процессов в области лица //Научная визуализация. 2016, 8 (5): 122-131.
5. Черемисина Е.Н., Баша Н.С. Распознавание личности по термографическим изображениям лица: современное состояние, перспективы развития. Системный анализ в науке и образовании (Электронный журн., режим доступа: http://www.sanse.ru/archive/24). 2012. 2.
6. Urakov A., Kasatkin A., Shikhova O., Dement’ev V. Infrared Imaging Device for Measuring Living Objects in Total Darkness // 14th Quantitanive InfraRed Thermography Conference (QIRT-2018). Berlin, Germany, June 24-29, 2018. P10.
7. Znamenskaya I.A., Koroteyeva E.Y., Khakhalin A.V. et al. Infrared Thermography and Image Analysis of Dynamic Processes around the Facial Area // Moscow University Physics Bulletin. 2017. Vol. 72, № 6. P. 595-600.

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1. Jain A., Bolle R., Pankanti S. Kluwer (ed.). Biometrics: personal identification in networked society, Infrared identification of faces and body parts. USA: Acad. Pub, 1998. 419 р.

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1. Aartz N.Y. Facial thermography // Acta Radiol. 1969. N 9. P. 654-660.
2. Abidi B. Performance comparison of visual and thermal signatures for face recognition // The Biometrics Consortium Conference, Arlington, VA, September 2003.
3. Abidi B. Iris thermal/visible face database // DOE University Research Program in Robotics under grant DOE-DE-FG02-86NE37968, 2007.
4. Abidi B., Huq S., Abidi M. Fusion of visual, thermal, and range as a solution to illumination and pose restrictions in face recognition // 38th Annual 2004 International Carnahan Conference on Security Technology, 2004. IEEE, 2004, pp. 325-330.
5. Adachi H., Oiwa K., Nozawa A. Drowsiness Level Modeling Based on Facial Skin Temperature Distribution Using a Convolutional Neural Network // IEEJ Tran Electr Electron Eng. March 2019;14(6):870-876. DOI:10.1002/tee.22876
6. Aires Júnior F.A.F. Otimização do processo metodológico para aquisição de imagens termográficas da face. 2018. 95f. Tese (Doutorado em Engenharia de Processos) – Universidade Federal de Campina Grande, Campina Grande, 2018.
7. Akhloufi M.A., Bendada A. Fusion of active and passive infrared images for face recognition // Proc. SPIE 8705, Thermosense: Thermal Infrared Applications XXXV, 87050B (22 May 2013). <https://doi.org/10.1117/12.2017942>
8. Alkali A.H., Saatchi R., Elphick H., Burke D. Eyes’ corners detection in infrared images for real-time noncontact respiration rate monitoring // 2014 World Congress on Computer Applications and Information Systems (WCCAIS). IEEE, 2014, pp. 1-5.
9. Al-Khalidi F.Q., Saatchi R., Burke D., Elphick H. Tracking human face features in thermal images for respiration monitoring // Proceedings of the 2010 IEEE/ACS International Conference on Computer Systems and Applications (AICCSA), Hammamet, Tunisia, 16-19 May 2010; pp. 1-6.
10. Ammer K. Repeatability of temperature measurements at the forehead in thermal images from the standard view “face” // Thermology International. 2006;16(4):138-142.
11. Anbar M., Gratt B.M., Hong D. Thermology and facial telethermography. Part I: History and technical review // Dentomaxillofac Radiol. 1998 Mar; 27 (2): 61-67.
12. Andonova A., Radev A. Method of face recognition from thermal images // 11th International Conference on Quantitative InfraRed Thermography (QIRT-2012). Naples, Italy, June 2012. 4 pp. DOI: 10.21611/qirt.2012.3502012
13. Arandjelovic O., Hammoud R., Cipolla R. On person authentication by fusing visual and thermal face biometrics // 2006 IEEE International Conference on Video and Signal Based Surveillance. IEEE, 2006, pp. 50-50.
14. Arandjelovic O., Hammoud R., Cipolla R. Thermal and reflectance based personal identification methodology under variable illumination // Pattern Recognition, vol. 43, no. 5, pp. 1801-1813, 2010.
15. Ariyaratnam S., Rood J.P. Measurement of facial skin temperature // J Dent. 1990;18:250-253. doi: 10.1016/0300-5712(90)90022-7
16. Bando S., Oiwa K., Nozawa A. Evaluation of dynamics of forehead skin temperature under induced drowsiness // IEEJ Transactions on Electrical and Electronic Engineering, 2017; 12, S104-S109.
17. Bebis G., Gyaourova A., Singh S., Pavlidis I. Face recognition by fusing thermal infrared and visible imagery // Image and Vision Computing 24, 7 (July 2006), 727-742. DOI: https://doi.org/10.1016/j.imavis.2006.01.017
18. Bhattacharjee D., Seal A., Ganguly S. et al. A Comparative Study of Human Thermal Face Recognition Based on Haar Wavelet Transform and Local Binary Pattern // Computational Intelligence and Neuroscience, 2012, 1-12, 2012.
19. Bhattacharyya A., Chattarjee S., Sen S. et al. A deep learning model for classifying human facial expressions from infrared thermal images // Scientific Reports. October 2021;11(1):20696. DOI: [10.1038/s41598-021-99998-z](https://www.nature.com/articles/s41598-021-99998-z)
20. Bhowmik M.K., Bhattacharjee D., Basu D.K., Nasipuri M. Independent component analysis (ICA) of fused wavelet coefficients of thermal and visual images for human face recognition // Proc. SPIE 8058, Independent Component Analyses, Wavelets, Neural Networks, Biosystems, and Nanoengineering IX, 80581H (3 June 2011). <https://doi.org/10.1117/12.884455>
21. Bhowmik M.K., Bhattacharjee D., Nasipuri M. et al. Optimum fusion of visual and thermal face images for recognition // 2010 Sixth International Conference on Information Assurance and Security. IEEE, 2010, pp. 311-316.
22. Bhowmik M.K., Debnath R., Bhattacharjee D. A Comparative Studies Holistic & Local Feature-based Face Recognition Techniques using Optical and Infrared (IR) Images // 3rd National Conference on Emerging Trends and Applications in Computer Science. At: St. Anthony’s College, Shillong, India, March 2012.
23. Boisier B., Billiot B., Abdessalem Z. et al. Extraction and fusion of spectral parameters for face recognition // Proc. SPIE 7877, Image Processing: Machine Vision Applications IV, 78770V (7 February 2011). <https://doi.org/10.1117/12.876642>
24. Bourlai T., Jafri Z. Eye detection in the middle-wave infrared spectrum: towards recognition in the dark // 2011 IEEE International Workshop on Information Forensics and Security (WIFS), 2011, pp. 1-6.
25. Bourlai T., Kalka N., Ross A. et al. Cross-spectral face verification in the short wave infrared (swir) band // Int’l Conf. on Pattern Recognition, 2010, p. 1343-1357.
26. Buddharaju P., Pavlidis I., Kakadiaris I. Face recognition in the thermal infrared spectrum // Proc. of the Joint IEEE Workshop on Object Tracking and Classification spectrum. Beyond the Visible Spectrum. Washington, 2004. P. 133-133 DOI: [10.1109/CVPR.2004.343](https://doi.org/10.1109/CVPR.2004.343)
27. [Buddharaju P](http://www.ncbi.nlm.nih.gov/pubmed?term=%22Buddharaju%20P%22%5BAuthor%5D)., [Pavlidis I.T](http://www.ncbi.nlm.nih.gov/pubmed?term=%22Pavlidis%20IT%22%5BAuthor%5D)., [Tsiamyrtzis P](http://www.ncbi.nlm.nih.gov/pubmed?term=%22Tsiamyrtzis%20P%22%5BAuthor%5D). Physiology-based face recognition using the vascular network extracted from thermal facial images: A novel approach // Proceedings of the IEEE International Conference on Advanced Video and Signal based Surveillance, Como, Italy, Sept 15-16, 2005.
28. [Buddharaju P](http://www.ncbi.nlm.nih.gov/pubmed?term=%22Buddharaju%20P%22%5BAuthor%5D)., [Pavlidis I.T](http://www.ncbi.nlm.nih.gov/pubmed?term=%22Pavlidis%20IT%22%5BAuthor%5D)., [Tsiamyrtzis P](http://www.ncbi.nlm.nih.gov/pubmed?term=%22Tsiamyrtzis%20P%22%5BAuthor%5D). Pose-invariant physiological face recognition in the thermal infrared spectrum // 2006 Conference on Computer Vision and Pattern Recognition Workshop (CVPRW’06). IEEE, 2006, pp. 53-53.
29. [Buddharaju P](http://www.ncbi.nlm.nih.gov/pubmed?term=%22Buddharaju%20P%22%5BAuthor%5D)., [Pavlidis I.T](http://www.ncbi.nlm.nih.gov/pubmed?term=%22Pavlidis%20IT%22%5BAuthor%5D)., [Tsiamyrtzis P](http://www.ncbi.nlm.nih.gov/pubmed?term=%22Tsiamyrtzis%20P%22%5BAuthor%5D)., [Bazakos M](http://www.ncbi.nlm.nih.gov/pubmed?term=%22Bazakos%20M%22%5BAuthor%5D). Physiology-based face recognition in the thermal infrared spectrum // IEEE Trans. Pattern Anal. Mach. Intell. 2007 Apr. 29; (4): 613-626.
30. Budzan S., Wyzgolik R. Face and eyes localization algorithm in thermal images for temperature measurement of the inner canthus of the eyes // Infrared Physics & Technology 2013, 60: 225-234.
31. Buyssens P., Revenu M., Lepetit O. Fusion of IR and visible light modalities for face recognition // 2009 IEEE 3rd International Conference on Biometrics: Theory, Applications, and Systems. IEEE, 2009, pp. 1-6.
32. Cao Z., Schmid N.A. Composite multi-lobe descriptor for cross spectral face recognition: matching active IR to visible light images // Proc. SPIE 9476, Automatic Target Recognition XXV, 94760T (22 May 2015). <https://doi.org/10.1117/12.2176462>
33. Cardone D., Spadolini E., Perpetuini D. et al. Automated warping procedure for facial thermal imaging based on features identification in the visible domain // Infrared Physics & Technology. December 2020; 112, 103595. DOI: [10.1016/j.infrared.2020.103595](https://www.researchgate.net/deref/http%3A//dx.doi.org/10.1016/j.infrared.2020.103595?_sg%5B0%5D=79bxCEBx_BE7lrf1Uk90kHAHV8Jflx1naHfVkNyQymS8uI9nh8ZmSnYoE1do3XGBX4WfKL0qfzLgT_G6xhzP-hAIsA.RDwjROZR-JvpluH1m5AC7nhfUyEryusD2AvgVDMXTjNWbq9bgsdDghJvhPU79J_pCS5MSTqB2emtPv-c_EdYkA)
34. Carrapiço R., Mourão A., Magalhães J., Cavaco S. A comparison of thermal image descriptors for face analysis // European Signal Processing Conference (EUSIPCO). September 2015. DOI: [10.1109/EUSIPCO.2015.7362499](http://dx.doi.org/10.1109/EUSIPCO.2015.7362499)
35. Chen C.L., Jian B.L. Infrared thermal facial image sequence registration analysis and verification // Infrared Physics & Technology 2015; 69: 1-6.
36. Chen C., Ross A. Matching thermal to visible face images using hidden factor analysis in a cascaded subspace learning framework // Pattern Recognition Letters, 2016, 72, 25-32. <https://doi.org/10.1016/j.patrec.2015.06.021>
37. Chen J., Bai X. Thermal face segmentation based on circular shortest path // Infrared Physics & Technology 2019, 97, 391-400.
38. Chen Q., Tong W. The characteristics study on LBP operator in near infrared facial image // Advances in Neural Networks Lecture Notes in Computer Science, D. Liu, H. Zhang, M. Polycarpou, C. Alippi, and H. He, Eds., vol. 6676, pp. 57-65, Springer, Berlin Germany, 2011.
39. Chen X., Flynn P.J., Bowyer K.W. Visible-light and infrared face recognition // Proceedings of the Workshop on Multimodal User Authentication, Santa Barbara, CA, Dec 2003, pp. 48-55.
40. Chen X., Flynn P.J., Bowyer K.W. PCA-based face recognition in infrared imagery: Baseline and comparative studies // International Workshop on Analysis and Modeling of Faces and Gestures, Nice, France, October 2003.
41. Chen X., Flynn P.J., Bowyer K.W. IR and visible light face recognition // Computer Vision and Image Understanding, 2005. 99(3), 332-358.
42. Chen Y.T., Wang M.S. Human face recognition using thermal image // J Med Biol Eng. 2002;97-102.
43. Cherifi D., Kaddari R., Zair H., Nait-Ali A. Infrared face recognition using neural networks and HOG-svm // BioSMART 2019 – Proceedings: 3rd International Conference on BioEngineering for Smart Technologies 2019; art. no. 8734221.
44. Cho S.Y., Wang L., Ong W.J. Thermal imprint feature analysis for face recognition // Proceedings of the IEEE International Symposium on Industrial Electronics, Seoul, Korea, 5-8 July 2009; pp. 1875-1880.
45. Choi J.S., Bang J., Heo H., Park K. Evaluation of fear using nonintrusive measurement of multimodal sensors // Sensors 2015, 15, 17507-17533. [CrossRef] [PubMed]
46. Choi J., Hu S. Thermal to visible face recognition // Proceedings of SPIE - The International Society for Optical Engineering, 2012, pp. 311-316.
47. Choi J., Hu S., Young S.S., Davis L.S. Thermal to visible face recognition // Proc. SPIE 8371, Sensing Technologies for Global Health, Military Medicine, Disaster Response, and Environmental Monitoring II; and Biometric Technology for Human Identification IX, 83711L (21 May 2012). <https://doi.org/10.1117/12.920330>
48. Christensen J., Vaeth M., Wenzel A. Thermographic imaging of facial skin – gender differences and temperature changes over time in healthy subjects // Dentomaxillofac Radiol. 2012 Dec. 41 (8): 662-667. doi:10.1259/dmfr/55922484
49. Chu N., Zhong Y., Hou Y. High-precision thermography based on JMAP inference for human face temperature. In Proceedings of the Infrared, Millimeter-Wave, and Terahertz Technologies VII // SPIE-Intl Soc Optical Eng, 2020; October 11-16, 2020; Online Only; Volume 11559, p. 115590
50. Clark A., Mangat J., King Y. et al. Thermographic imaging during nasal peanut challenge may be useful in the diagnosis of peanut allergy // Allergy. 2012; 67(4): 574-576. <https://doi.org/10.1111/j.1398-9995.2012.02788.x>
51. Clark A.T., Mangat J.S., Tay S.S. et al. Facial thermography is a sensitive and specific method for assessing food challenge outcome // Allergy. 2007 Jul;62(7):744-749. <https://doi.org/10.1111/j.1398-9995.2007.01363.x>
52. Cui H., Li B., Shen Z. Combining shape and texture features for infrared pedestrian detection // Proc. SPIE 8002, MIPPR 2011: Multispectral Image Acquisition, Processing, and Analysis, 80021D (8 December 2011). <https://doi.org/10.1117/12.902013>
53. Damer N., Boutros F., Mallat K. et al. Cascaded generation of high-quality color visible face images from thermal captures // arXiv preprint arXiv:1910.09524, 2019.
54. DeOliveira F., Palier P., Gehin C. et al. Analyse de la distribution thermique du visage. SFT Congress, Societe Francaise de Thermique. 2007; p. 1093-1098 [Internet]; [cited 2016 Mar 16]. Available from: <https://www.researchgate.net/profile/Fabrice_Oliveira/publication/> 228995164\_Analyse\_de\_la\_distribution\_thermique\_du\_visage/links/0deec53bf182cb5b80000000.pdf
55. Desa S.M., Hati S. IR and visible face recognition using fusion of kernel based features // 2@inproceedingsgyaourova2004fusion, title=Fusion of infrared and visible images for face recognition, Gyaourova A., Bebis G., Pavlidis I. / European Conference on Computer Vision, pp. 456-468, 2004. 19th International Conference on Pattern Recognition. IEEE, 2008, pp. 1-4.
56. Dhamecha T.I., Nigam A., Singh R., M. Vatsa. Disguise detection and face recognition in visible and thermal spectrums // 2013 International Conference on Biometrics (ICB). IEEE, 2013, pp. 1-8.
57. Di X., Hu S., Patel V.M. Heterogeneous Face Frontalization via Domain Agnostic Learning // [arXiv:2107.08311](https://arxiv.org/abs/2107.08311) [cs.CV] (or [arXiv:2107.08311v2](https://arxiv.org/abs/2107.08311v2) [cs.CV] for this version). Preprint. Subject: Computer Vision and Pattern Recognition (cs.CV). Comments: FG2021 camera-ready version. DOI: [10.1109/FG52635.2021.9666962](https://arxiv.org/ct?url=https%3A%2F%2Fdx.doi.org%2F10.1109%2FFG52635.2021.9666962&v=897a32b7)
58. Di X., Hu S., Patel V.M. Heterogeneous Face Frontalization via Domain Agnostic Learning // 2021 16th IEEE International Conference on Automatic Face and Gesture Recognition (FG 2021). P. 1-8. DOI Bookmark: [10.1109/FG52635.2021.9666962](https://doi.ieeecomputersociety.org/10.1109/FG52635.2021.9666962)
59. Di X., Riggan B.S., Hu S. Polarimetric Thermal to Visible Face Verification via Self-Attention Guided Synthesis // Preprint. URL (April 2019): <https://www.researchgate.net/publication/332463214_Polarimetric_Thermal_to_Visible_Face_Verification_via_Self-Attention_Guided_Synthesis>
60. Di X., Riggan B.S., Hu S. et al. Polarimetric Thermal to Visible Face Verification via Self-Attention Guided Synthesis // 2019 International Conference on Biometrics (ICB), June 2019. 8 pp. DOI: [10.1109/ICB45273.2019.8987329](https://www.researchgate.net/deref/http%3A//dx.doi.org/10.1109/ICB45273.2019.8987329?_sg%5B0%5D=e9bcvuxUQBf20Pezx8ak7PfDV7MSCj2XHgYcfutQGfQ2BZb1Lbdav3eJgTAKhGBANO6tZBXh0fWLEYPf41gDaUZvRQ.zVo-lI3wnlLozCu9p6BEdju5wUd7PLkuIDQmRwBxV45iTW7XCeLGr-gOIX90IqKcqbSF25EmmVrPdt8aZvKWGg)
61. Di X., Riggan B.S., Hu S. et al. Multi-Scale Thermal to Visible Face Verification via Attribute Guided Synthesis // IEEE Transactions on Biometrics, Behavior, and Identity Science 3 (2), 266-280.
62. Di X., Zhang H., Patel V.M. Polarimetric thermal to visible face verification via attribute preserved synthesis // 2018 IEEE 9th International Conference on Biometrics Theory, Applications and Systems (BTAS). CoRR, 2019. 10 pp. abs/1901.00889 arXiv:1901.00889
63. Di X., Zhang H., Patel V.M. Thermal-to-Visible Face Synthesis and Recognition // Deep Learning-Based Face Analytics, 2021, 233-246.
64. Diakides N. Medical Infrared Imaging; Abnormal Facial Conditions Demonstrated with Infrared Facial Thermography. CRC Press, Boca Raton, Fla, 2008, 20-1 through 20-8.
65. Di Credico A., Perpetuini D., Izzicupo P. et al. Estimation of Heart Rate Variability Parameters by Machine Learning Approaches Applied to Facial Infrared Thermal Imaging // Front. Cardiovasc. Med. 2022;9:893374. 11 pp. doi: 10.3389/fcvm.2022.893374
66. Dou M., Zhang C., Hao P., Li J. Converting thermal infrared face images into normal gray-level images // Asian Conference on Computer Vision, 2007, pp. 722-732.
67. Espinosa-Duró V., Faundez-Zanuy M., Mekyska J. A new face database simultaneously acquired in visible, near-infrared and thermal spectrums // Cognitive Computation, 2013. 5(1), 119-135.
68. Espinosa-Duró V., Faundez-Zanuy M., Mekyska J., Monte-Moreno E. A criterion for analysis of different sensor combinations with an application to face biometrics // Cognitive Computation, vol. 2, no. 3, pp. 135-141, 2010.
69. Evans D.C. Infrared facial recognition technology being pushed toward emerging applications // Proc. SPIE. 1997; V. 2962. P. 276-286.
70. Eveland C. Utilizing Visible and Thermal Infrared Video for the Fast Detection and Tracking of Faces. Ph.D. thesis, University of Rochester, 2003.
71. Eveland C.K., Socolinsky D.A., Wolff L.B. Tracking Human Faces in Infrared Video // Image Vis. Comput. 2003, 21, 579-590. [https://doi.org/10.1016/S0262-8856(03)00056-8](https://doi.org/10.1016/S0262-8856%2803%2900056-8)
72. Fajri K., Arnia F., Munadi K. Implementasi Haar-Like Feature Dan Svm Untuk Pengenalan Wajah Dari Citra Thermal [Implementation of Haar-Like Feature and SVM for Facial Recognition from Thermal Imagery] // Syntax Literate: Jurnal Ilmiah Indonesia (2022) (7)12:1-17. <http://dx.doi.org/10.36418/syntax-literate.v7i12.10194> [in Indonesian]
73. Fitriyah H., Rachmadi A., Setyawan G.E. Automatic Measurement of Human Body Temperature on Thermal Image Using Knowledge-Based Criteria // Journal of Information Technology and Computer Science Volume 2, Number 2, 2017, pp. 90- 97. DOI: [10.25126/jitecs.20172235](http://dx.doi.org/10.25126/jitecs.20172235)
74. Fondje C.N., [Hu](https://www.spiedigitallibrary.org/profile/Shuowen.Hu-100835) S., Riggan B. Learning Domain and Pose Invariance for Thermal-to-Visible Face Recognition // Preprint. arXiv:2211.09350v1 [cs.CV] 17 Nov 2022.
75. Fondje C.N., [Hu](https://www.spiedigitallibrary.org/profile/Shuowen.Hu-100835) S., Riggan B. Learning Domain and Pose Invariance for Thermal-to-Visible Face Recognition // IEEE Transactions on Biometrics Behavior and Identity Science. January 2022;(99):1-1. DOI: [10.1109/TBIOM.2022.3223055](http://dx.doi.org/10.1109/TBIOM.2022.3223055)
76. Fondje C.N., [Hu](https://www.spiedigitallibrary.org/profile/Shuowen.Hu-100835) S., Short N., Riggan B. Cross-Domain Identification for Thermal-to-Visible Face Recognition // arXiv:2008.08473v1 [cs.CV] 19 Aug 2020. 9 pp. / 2020 IEEE International Joint Conference on Biometrics (IJCB). September 2020. DOI: [10.1109/IJCB48548.2020.9304937](https://www.researchgate.net/deref/http%3A//dx.doi.org/10.1109/IJCB48548.2020.9304937?_sg%5B0%5D=ua5OBbuK9oubhSCFaiHSMAvFRbKZUCFUxA6z8Nuh4vgxxcrG6m4hbMDoUaKkw6dKIVmPKWzoWi54rFPDB9Tj-ZnoBA.lsPw4IdXaTlVZqeHtlQH6PreW8oowX_iiIsI00QsskpwO_MzvQUhjcwxgGRpuWD8ungPyy9dt0f1w4Bndt4IEA)
77. Fricova J., Janatova M., Anders M. et al. Thermovision: a new diagnostic method for orofacial pain? // Journal of Pain Research. 2018 December;11:3195-3203. DOI: [10.2147/JPR.S183096](http://dx.doi.org/10.2147/JPR.S183096)
78. Friedrich G., Yeshurun Y. Seeing people in the dark: Face recognition in infrared images // International Workshop on Biologically Motivated Computer Vision, Tuebingen, Germany, 22-24 November 2002; pp. 348-359.
79. Gault T.R., Blumenthal N., Farag A.A. et al. Extraction of the superficial facial vasculature, vital signs waveforms and rates using thermal imaging // Proceedings of the 2010 IEEE Computer Society Conference on Computer Vision and Pattern Recognition; 2010 Jul 13; San Francisco, CA. p. 1-8.
80. Gavhed D., Makinen T., Holmer I., Rintamaki H. Face temperature and cardiorespiratory responses to wind in thermoneutral and cool subjects exposed to –10oC // Euro. J. Appl. Physiol., 2000; 83: 449-456.
81. Ge W., Wang D., Cheng Y., Zhu M. Infrared face recognition using linear subspace analysis // Proc. SPIE 7496, MIPPR 2009: Pattern Recognition and Computer Vision, 74961Z (30 October 2009). <https://doi.org/10.1117/12.832984>
82. Genno H., Saijo A., Yoshida H., Suzuki R. Non-contact method for measuring facial skin temperature // International Journal of Industrial Ergonomics. 1997; 141(96):147-159.
83. Ghahramani A., Castro G., Becerik-Gerber B., Yu X. Infrared thermography of human face for monitoring thermoregulation performance and estimating personal thermal comfort // Build. Environ. 109 (2016) 1-11. doi:10.1016/J.BUILDENV.2016.09.005
84. Ghiass R.S. Face Recognition Using Infrared Vision. Diss. Université Laval, 2014.
85. Ghiass R.S., Arandjelovi´c O., Bendada A., Maldague X. Infrared face recognition: A comprehensive review of methodologies and databases // Pattern Recognit. 2014, 47, 2807-2824.
86. Ghiass R.S., Arandjelovi´c O., Bendada A., Maldague X. Vesselness features and the inverse compositional AAM for robust face recognition using thermal IR // Proceedings of the Twenty-Seventh AAAI Conference on Artificial Intelligence, IEEE, Bellevue, Washington DC USA, pp. 357-364, July 2013.
87. Ghiass R.S., Bendada A., Maldague X. Infrared face recognition: A review of the state of the art // Proc. International Conference on Quantitative Infrared Thermography (QIRT-2010), 2010, pp. 533-540.
88. Ghiass R. S., Bendada H., Maldague X. Université Laval Face Motion and Time-Lapse Video Database (UL-FMTV) // 14th Quantitanive InfraRed Thermography Conference (QIRT-2018). Berlin, Germany, June 24-29, 2018. We.4.B.3, 9 pp.
89. Ghiass R.S. et al. A unified framework for thermal face recognition // International Conference on Neural Information Processing. Springer, Cham, 2014.
90. Ghiass R.S. et al. Illumination-invariant face recognition from a single image across extreme pose using a dual dimension AAM ensemble in the thermal infrared spectrum // Neural Networks (IJCNN), The 2013 International Joint Conference on. IEEE, 2013.
91. Goldman R., Benyamin M., Thielke M.D., Hu S. Characterizing hyperspectral signatures of human faces in the shortwave infrared spectrum // Signal Processing, Sensor/Information Fusion, and Target Recognition XXVIII. May 2019. DOI: [10.1117/12.2519735](https://www.researchgate.net/deref/http%3A//dx.doi.org/10.1117/12.2519735?_sg%5B0%5D=ee69rtaqcnTfN72c3EfnCdyU_CGeeFKIHOQHfLew034Tcx_ffnVB7FoC_UkBhTB2GJIIiZw288YU4TEAyakyUriH1w.jzXWt3QHJIClgWOIl_SHB6sRBg6cof5c2Cdv0xc1Vb2U9jgcbpinBlrx3IHGQL7_-ISwpBJrX9yk7KbQIH2n-g)
92. Gomes E., Santana E.A.S., Dias G.T.B. et al. Diagnostic procedures in infrared thermography for the human face: a scoping review protocol // Rev. CEFAC. 2023;25(3):e1623. DOI: 10.1590/1982-0216/20232531623
93. Goubet E., Katz J., Porikli F. Pedestrian tracking using thermal infrared imaging // Proc. SPIE 6206, Infrared Technology and Applications XXXII, 62062C (18 May 2006). <https://doi.org/10.1117/12.673132>
94. Gratt B.M., Anbar M. Thermology and facial telethermography: Part II. Current and future clinical applications in dentistry // Dentomaxillofac Radiol. 1998 Mar;27(2):68-74. doi: 10.1038/sj/dmfr/4600324. PMID: 9656869
95. Gratt B.M., Graff-Radford S.B., Shetty V. et al. A 6-year clinical assessment of electronic facial thermography // Dentomaxillofac Radiol. 1996;25(5):247-255.
96. Gratt B.M., Pullinger A., Sickles E.A., Lee J.J. Electronic thermography of normal facial structures: A pilot study // Oral Surgery, Oral Medicine, and Oral Pathology, 1989. 68(3), 346-351. doi:10.1016/0030-4220(89)90222-3 PMID:2771378
97. Gratt B.M., Sickles E.A. Electronic facial thermography: An analysis of asymptomatic adult subjects // Journal of Orofacial Pain, 1995. 9(3), 197-206. PMID:8995925
98. Gros C., Bourjat P., Gautherie M. L'image thermographieue normale et pathologique de la face. B. L'image pathologique [The normal and pathologic thermographic image of the face. B. The pathologic picture] // J Radiol Electrol Med Nucl. 1970 Aug-Sep;51(8):479-492. [in French]. PMID: 5488488
99. Gurton K., Yuffa A., Videen G. Enhanced facial recognition for thermal imagery using polarimetric imaging // Optics Letters, 2014, 39(13):3857-3859.
100. Gyaourova A., Bebis G., Pavlidis I. Fusion of infrared and visible images for face recognition // in European Conference on Computer Vision. Springer, 2004, pp. 456-468.
101. Haddad D.S. Estudo da Distribuição Térmica da Superfície Cutânea Facial por Meio de Termografia Infravermelha: Termoanatomia da Face. Tese de Doutorado, Universidade de São Paulo, São Paulo-SP, 2014.
102. Haddad D.S., Arita E.S., Brioschi M.L. et al. The facial thermal effect of dynamic mechanical and vascular provocation tests: preliminary study // 9th edition of IEEE International Symposium on Medical Measurements and Applications Proceedings (MeMeA2014), At: Lisbon. Volume: 1, P. 703-705. doi:10.1259/dmfr.20150264 (DOI: [10.1109/MeMeA.2014.6860152](https://www.researchgate.net/deref/http%3A//dx.doi.org/10.1109/MeMeA.2014.6860152?_sg%5B0%5D=DW47HJ9sY6KCJneP3KVYPgT10KG-c-ndvMhRt5ykH9cLq1hyHwbSn8wGqT1wMD94cet20wp7PaUEOtqCqh0ALOwAEQ.LhoPF7Uykv03c4iU1MVWIbUEBjLCNckbKtBxmgUsLL8oPFYWXfy7Wg2NJcbuJDrtPq6mi-DRTyezazJA5t4EDg) - ?).
103. Haddad D.S., Brioschi M.L., Baladi M.G., Arita E.S. A new evaluation of heat distribution on facial skin surface by infrared thermography // Dentomaxillofacial Radiology 2016; 45 (4), art no 20150264, 10 pp. doi:10.1259/dmfr.20150264
104. Haddad D.S., Brioshi M.L., Gabriel J. The facial thermal effect of dynamic mechanical and vascular provocation tests // 2014 IEEE Int. Sympos. on Medical Measurements and Applications (MeMeA). Lisboa. 11-12 June 2014 P.1-4.
105. Haddad D.S., Brioshi M.L., Vardasca R., Arita E.S. Study of the facial surface skin thermal distribution by infrared thermography: facial thermoanatomy // Thermology International 2015; 25/3. P. 137-138.
106. Hardy P.A., Bowsher D.R. Contact thermography in idiopathic trigeminal neuralgia and other facial pains // Br J Neurosurg. 1989;3(3):399-401.
107. Hariharan H., Koschan A., Abidi B. et al. Fusion of visible and infrared images using empirical mode decomposition to improve face recognition // 2006 International Conference on Image Processing. IEEE, 2006, pp. 2049-2052.
108. Hattori T., Nagumo K., Oiwa K., Nozawa A. Attempt to extract features and classify subjective poor physical conditions in facial images using deep metric learning // Artificial Life and Robotics. December 2022. DOI: [10.1007/s10015-022-00831-1](http://dx.doi.org/10.1007/s10015-022-00831-1)
109. Heo J., Kong S.G., Abidi B.R., Abidi M.A. Fusion of Visual and Thermal Signatures with Eyeglass Removal for Robust Face Recognition // Conference on Computer Vision and Pattern Recognition Workshop, 2004. CVPRW ’04, 122=122. DOI: https://doi.org/10.1109/CVPR.2004.77
110. Herrmann C., Müller T., Willersinn D., Beyerer J. Real-time person detection in low-resolution thermal infrared imagery with MSER and CNNs // Proc. SPIE 9987, Electro-Optical and Infrared Systems: Technology and Applications XIII, 99870I (21 October 2016). <https://doi.org/10.1117/12.2240940>
111. Hermosilla G., Gallardo F., Farias G., Martin C.S. Fusion of visible and thermal descriptors using genetic algorithms for face recognition systems // Sensors 2015; 15: 17944-17962.
112. Hermosilla G., Ruiz-del-Solar J., Verschae R. An enhanced representation of thermal faces for improving local appearance-based face recognition // Intelligent Automation & Soft Computing, vol. 23, pp. 1-12, 2017.
113. Hermosilla G., Ruiz-del-Solar J., Verschae R., Correa M. A comparative study of thermal face recognition methods in unconstrained environments // Pattern Recognition, vol. 45, no. 7, pp. 2445-2459, 2013.
114. Hernandez B., Olague G., Hammoud R. et al. Visual learning of texture descriptors for facial expression recognition in thermal imagery // Comput. Vis. Image Understand, 2007; 106 (2): 258-269.
115. Hu S., Choi J., Chan A.L., Schwartz W.R. Thermal-to-visible face recognition using partial least squares // Journal of the Optical Society of America A, 2015, 32(3):431-442.
116. Hu S., Riggan B.S., Short N.J., [Gurton](https://www.spiedigitallibrary.org/profile/kgurton) K. Overview of polarimetric thermal imaging for biometrics // Conference: Polarization: Measurement, Analysis, and Remote Sensing XIII May 2018. DOI: 10.1117/12.2299761
117. [Hu](https://www.spiedigitallibrary.org/profile/Shuowen.Hu-100835) S., Short N., [Gurton](https://www.spiedigitallibrary.org/profile/kgurton) K., Riggan B. Overview of polarimetric thermal imaging for biometrics // Proc. SPIE 10655, Polarization: Measurement, Analysis, and Remote Sensing XIII, 1065502 (14 May 2018); doi: 10.1117/12.2299761; <https://doi.org/10.1117/12.2299761>
118. Hu S., Short N.J., Riggan B.S. et al. A polarimetric thermal database for face recognition research // IEEE Int’l Conf. on Computer Vision and Pattern Recognition Workshops (CVPRW) Biometrics Workshop, 2016. P. 119-126.
119. Hu M., Zhai G., Li D. et al. Combination of near-infrared and thermal imaging techniques for the remote and simultaneous measurements of breathing and heart rates under sleep situation // PLoS ONE 2018, 13, e0190466. <https://doi.org/10.1371/journal.pone.0190466>
120. Hussien M.N., Lye M.-H., Fauzi M.F.A. et al. Comparative analysis of eyes detection on face thermal images // 2017 IEEE International Conference on Signal and Image Processing Applications (ICSIPA). IEEE, 2017, pp. 385-389.
121. Immidisetti R., Hu S., Patel V.M. Simultaneous Face Hallucination and Translation for Thermal to Visible Face Verification using Axial-GAN // Preprint. arXiv:2104.06534v1 [cs.CV] 13 Apr 2021. 9 pp.
122. Immidisetti R., Hu S., Patel V.M. Simultaneous Face Hallucination and Translation for Thermal to Visible Face Verification using Axial-GAN // 2021 IEEE International Joint Conference on Biometrics (IJCB). August 2021. DOI: [10.1109/IJCB52358.2021.9484353](http://dx.doi.org/10.1109/IJCB52358.2021.9484353)
123. Iranmanesh S.M., Dabouei A., Kazemi H., Nasrabadi N.M. Deep Cross Polarimetric Thermal-to-visible Face Recognition // ArXiv e-prints (2018). arXiv:1801.01486v1 [cs.CV] 4 Jan 2018
124. Ito A., Nagumo S., Oiwa K., Nozawa A. An Optimization for Resting Blood Pressure Estimation Model Based on Independent Components of Facial Thermal Images // IEEJ Transactions on Electrical and Electronic Engineering. February 2024. DOI: [10.1002/tee.24011](http://dx.doi.org/10.1002/tee.24011)
125. Ito H., Bando S., Oiwa K., Nozava A. Evaluation of variations in autonomic nervous system’s activity during the day based on facial thermal images using independent component analysis // IEEJ Transactions on Electronics Information and Systems Jul 2018, 138(7):812-821. DOI: 10.1541/ieejeiss.138.812
126. Ito H., Oiwa K., Nozawa A. Face Tracking based on Temperature Distribution of Thermal Images for Real-Time Psychophysiological States Evaluation using Facial Skin Temperature // 2018 International Conference on Intelligent Informatics and Biomedical Sciences (ICIIBMS). October 2018. DOI: 10.1109/ICIIBMS.2018.8549966
127. Iwashita Y., Nagumo K., Oiwa K., Nozawa A. Estimation of resting blood pressure using facial thermal images by separating acute stress variations // Artificial Life and Robotics, 2021;. 26(4), 473-480.
128. Iwashita Y., Nagumo K., Oiwa K., Nozawa A. An attempt to construct a general model for resting blood pressure estimation using independent components of facial thermal images // 2021 6th International Conference on Intelligent Informatics and Biomedical Sciences (ICIIBMS), November 2021. DOI: [10.1109/ICIIBMS52876.2021.9651589](http://dx.doi.org/10.1109/ICIIBMS52876.2021.9651589)
129. Izdebski K., Jarosz P., Usydus I. Thermographic imaging of facial and ventilatory activity during vocalization, speech and expiration (Conference Presentation) // Proc. SPIE 10039, Optical Imaging, Therapeutics, and Advanced Technology in Head and Neck Surgery and Otolaryngology, 1003908 (19 April 2017); <https://doi.org/10.1117/12.2256474>
130. Jaramillo-Quintanar D., Cruz-Albarran I.A., Dominguez-Trejo B. et al. Face Thermal Map of the Mexican Population in the Basal State // Int. J. Environ. Res. Public Health 2022, 19, 14208. 14 pp. https://doi.org/10.3390/ ijerph192114208
131. Jarlier S., Grandjean D., Delplanque D. et al. Thermal analysis of facial muscles contractions // IEEE Trans. Affective Comput., Jan.-Mar. 2011. 2 (1): 2-9. [CrossRef]
132. Jian B.-L., Chen C.-L., Chu W.-L., Huang M.-W. The facial expression of schizophrenic patients applied with infrared thermal facial image sequence // BMC Psychiatry 2017, 17, 1-7.
133. Joardar S., Sen D., Sen D. et al. Pose invariant thermal face recognition using patch-wise self-similarity features // 2017 Third International Conference on Research in Computational Intelligence and Communication Networks (ICRCICN). IEEE, 2017, pp. 203-207.
134. Junfeng B., Yong M., Jing L., Fan F., Hongyuan W. Novel averaging window filter for SIFT in infrared face recognition // Chinese Optics Letters, vol. 9, no 8, pp. 081002-081002, 2011.
135. Kantarci A., Ekenel H.K. Thermal to visible face recognition using deep autoencoders // 2019 International Conference of the Biometrics Special Interest Group (BIOSIG). IEEE, 2019, 5 pp.
136. Kato Y., Magumo K., Bando S. et al. Electric Circuit Model and Thermo-Hue Hemodynamic Analysis for Non-Contact Blood Pressure Measurement // EEJ Transactions on Electronics, Information and Systems. 2020. Vol. 140 Is. 1 P. 122-123. <https://doi.org/10.1541/ieejeiss.140.122>
137. Kevin X.C.P.J.F., Bowyer W. Visible-light and infrared face recognition // Workshop on Multimodal User Authentication. Citeseer, 2003, p. 48.
138. Khallaf A. et al. Thermographic study of heat loss from the face // Thermol. Österr., 4, 49, 1994.
139. Kong S.G., Heo J., Abidi B.R. et al. Recent advances in visual and infrared face recognition: A review // Computer Vision and Image Understanding, vol. 97, pp. 103-135, 2005.
140. Kong S.G., Heo J., Boughorbel F. et al. Multiscale fusion of visible and thermal IR images for illumination invariant face recognition // International Journal of Computer Vision, vol. 71, no. 2, pp. 215-233, 2007.
141. Kopaczka M., Acar K., Merhof D. Robust Facial Landmark Detection and Face Tracking in Thermal Infrared Images using Active Appearance Models // VISIGRAPP (4: VISAPP) (pp. 150-158) (2016, February). Available online: https://pdfs.semanticscholar.org/ 50a0/930cb8cc353e15a5cb4d2f41b365675b5ebf.pdf (accessed on 11 September 2019).
142. Kopaczka M., Breuer L., Schock J., Merhof D. A Modular System for Detection, Tracking and Analysis of Human Faces in Thermal Infrared Recordings // Sensors 2019, 19, 4135-4147. doi:10.3390/s19194135
143. Kopaczka M., Kolk R., Merhof D. A fully annotated thermal face database and its application for thermal facial expression recognition // Proceedings of the 2018 IEEE International Instrumentation and Measurement Technology Conference (I2MTC), Houston, TX, USA, 14-17 May 2018; pp. 1-6.
144. Kopaczka M., Kolk R., Schock J. et al. A Thermal Infrared Face Database with Facial Landmarks and Emotion Labels // IEEE Trans. Instrum. Meas. 2018, 68, 5, 1389-1401. DOI: [10.1109/TIM.2018.2884364](https://doi.org/10.1109/TIM.2018.2884364)
145. Kopaczka M., Nestler J., Merhof D. Face detection in thermal infrared images: A comparison of algorithm-and machine learning-based approaches // International Conference on Advanced Concepts for Intelligent Vision Systems (pp. 518-529). Springer, Cham (2017, September).
146. Kopaczka M., Schock J., Nestler J. et al. A combined modular system for face detection, head pose estimation, face tracking and emotion recognition in thermal infrared images // Proceedings of the 2018 IEEE International Conference on Imaging Systems and Techniques (IST), Krakow, Poland, 16-18 Oct 2018.
147. Koukiou G. Intoxication Identification Using Thermal Imaging. In book: Human-Robot Interaction - Theory and Application. July 2018. Chapter. DOI: 10.5772/intechopen.72128
148. Koukiou G., Anastassopoulos V. Neural networks for identifying drunk persons using thermal infrared imagery // Forensic Science International. 2015; 252, 69-76.
149. Koukiou G., Anastassopoulos V. Intoxicated person discrimination using infrared signature of facial blood vessels // Australian Journal of Forensic Sciences 2016; 48 (3): 326-338.
150. Koukiou G., Anastassopoulos V. Fusion of Dissimilar Features from Thermal Imaging for Improving Drunk Person Identification // Int. J. Signal Process. Syst. 2017, 5, 106-111.
151. Koukiou G., Panagopoulos G., Anastassopoulos V. Drunken person identification using thermal infrared images // Proc. Digit. Signal Process., 2009; P. 1-4.
152. Kowalski M., Grudzień A. High-resolution thermal face dataset for face and expression recognition // Metrol. Meas. Syst. 2018, 25, 403-415.
153. Kowalski M., Grudzień A., Palka N., Szustakowski M. Face recognition in the thermal infrared domain // Counterterrorism, Crime Fighting, Forensics, and Surveillance Technologies, vol. 10441. International Society for Optics and Photonics, 2017, p. 1044109.
154. Krišto M., Ivasic-Kos M. An overview of thermal face recognition methods // Proceedings of the 2018 41st International Convention on Information and Communication Technology, Electronics and Microelectronics (MIPRO), Opatija, Croatia, 21-25 May 2018; pp. 1098-1103.
155. Krotosky S.J., Cheng S.Y., Trivedi M.M. Face detection and head tracking using stereo and thermal infrared cameras for "smart" airbags: a comparative analysis // Intelligent Transportation Systems, 2004. Proceedings. The 7th International IEEE Conference on, 2004, pp. 17-22.
156. Kusumi T., Ishii K., Kusumi M. et al. A study of facial skin temperature by thermographic examination in relation to environmental temperature // J Showa Med Assoc. 1989;49:480-487 [In Japanese]
157. Kwasniewska A., Ruminski J., Szankin M., Czuszynski K. Pose-invariant face detection by replacing deep neurons with capsules for thermal imagery in telemedicine // 2018 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC). IEEE, 2018, pp. 778-781.
158. Kwon O.-K., Kong S.G. Multiscale fusion of visual and thermal images for robust face recognition // CIHSPS 2005. Proceedings of the 2005 IEEE International Conference on Computational Intelligence for Homeland Security and Personal Safety, 2005. IEEE, 2005, pp. 112-116.
159. Leblanc J., Blais B., Barabr B. Cote J. Effects of temperature and wind on facial temperature, heart rate and sensation // J. Appl. Physiol., 1976; 40: 127-131.
160. Leykin A., Ran Y., Hammoud R. Thermal-Visible Video Fusion for Moving Target Tracking and Pedestrian Classification // Proceedings of the 2007 IEEE Conference on Computer Vision and Pattern Recognition, Minneapolis, MN, USA, 17-22 June 2007.
161. Li D., Menassa C.C., Kamat V.R. Non-intrusive interpretation of human thermal comfort through analysis of facial infrared thermography // Energy Build. 2018, 176, 246-261.
162. Li J., Hao P., Zhang C., Dou M. Hallucinating faces from thermal infrared images // Proceedings of the International Conference on Image Processing, ICIP 2008, October 12-15, 2008, San Diego, California, USA. IEEE, 2008, pp. 465-468. <https://doi.org/10.1109/ICIP.2008.4711792>
163. Li X., Wang J., Xie Z. Infrared face recognition based on multiwavelet transform and PCA //Proc. SPIE 8417, 6th International Symposium on Advanced Optical Manufacturing and Testing Technologies: Optical Test and Measurement Technology and Equipment, 84171M (15 October 2012). <https://doi.org/10.1117/12.975779>
164. Li S.Y., Zhang D., Zhang S.Y. et al. Study on facial temperature effects on the normal by acupuncturing Hegu (LI4) // Zhongguo Zhen Jiu. 2009;(S1):57-59. [in Chinese]
165. Ludwig N., Formenti D., Rossi A. et al. Assessing Facial Skin Temperature Asymmetry with Different Methods // Proceedings of the 2016 International Conference on Quantitative InfraRed Thermography, QIRT Council, Gdansk, Poland, 4-8 July 2016. DOI: [10.21611/qirt.2016.074](http://dx.doi.org/10.21611/qirt.2016.074)
166. Ma C., Trung N., Uchiyama H. et al. Adapting local features for face detection in thermal image // Sensors 2017, 17, 2741. <https://doi.org/10.3390/s17122741>
167. Ma C., Trung N., Uchiyama H. et al. Mixed features for face detection in thermal image // Proc. SPIE 10338, Thirteenth International Conference on Quality Control by Artificial Vision 2017, 103380E (14 May 2017). <https://doi.org/10.1117/12.2266836>
168. Ma J., Zhao J., Ma Y., Tian J. Non-Rigid Visible and Infrared Face Registration via Regularized Gaussian Fields Criterion // Pattern Recognit. 2015, 48, 772-784. <https://doi.org/10.1016/j.patcog.2014.09.005>
169. Marcin K., Raphael K., Dorit M. A Fully Annotated Thermal Face Database and its Application for Thermal Facial Expression Recognition // IEEE International Instrumentation and Measurement Technology Conference (I2MTC) (2018).
170. Mallat K. Efficient integration of thermal technology in facial image processing through interspectral synthesis. Dissertation. Sorbonne Université, July 2020. 152 pp.
171. Mallat K., Damer N., Boutros F. et al. Cross-spectrum thermal to visible face recognition based on cascaded image synthesis // 2019 International Conference on Biometrics (ICB). IEEE, 2019, pp. 1-8.
172. Mallat K., Dugelay J.-L. A benchmark database of visible and thermal paired face images across multiple variations // 2018 International Conference of the Biometrics Special Interest Group (BIOSIG). IEEE, 2018, pp. 1-5.
173. Mariusz M., Koprowski R., Wróbel Z. et al. Automatic method for detection of characteristic areas in thermal face images // Multimedia Tools and Applications, 2015, vol. 74(12), pp 4351-4368.
174. Martinez B., Binefa X., Pantic M. Facial component detection in thermal imagery // 2010 IEEE Comput Soc Conf Comput Vis Pattern Recogn Work, CVPRW 2010: 48-54. doi: [https://doi.org/10.1109 /CVPRW.2010.5543605](https://doi.org/10.1109%20/CVPRW.2010.5543605)
175. Marzec M., Koprowski R., Wróbel Z. Detection of selected face areas on thermograms with elimination of typical problems // Journal of medical informatics & technologies, 2010, vol. 16, pp.151-159.
176. Marzec M., Koprowski R., Wróbel Z. Methods of face localization in thermograms // Biocybern. Biomed. Eng. 2015, 35, 138-146. [CrossRef]
177. Marzec M., Koprowski R., Wrobel Z. Wyznaczanie charakterystycznych obszarow twarzy na obrazach termowizyjnych // Acta Bioopt Inf Med Biomed Eng. 2009; 15: 149-152. [in Polish]
178. Marzec M., Koprowski R., Wrobel Z. et al. Automatic method for detection of characteristic areas in thermal face images // Multimedia Tools and Applications 2015; 74 (12): 4351-4368. [https://doi.org/10.1007 /s11042-013-1745-9](https://doi.org/10.1007%20/s11042-013-1745-9)
179. Marzec M., Lamża A., Wróbel Z., Dziech A. Fast eye localization from thermal images using neural networks, Multimed Tools (2016) Appl 1-14. <https://doi.org/10.1007/s11042-016-4094-7>
180. Masaki A., Nagumo K., Iwashita Y. et al. An attempt to construct the individual model of daily facial skin temperature using variational autoencoder // Artificial Life and Robotics. September 2021. 6 pp. DOI: [10.1007/s10015-021-00699-7](http://dx.doi.org/10.1007/s10015-021-00699-7)
181. Masaki A., Nagumo K., Iwashita Y. et al. Correction to: An attempt to construct the individual model of daily facial skin temperature using variational autoencoder // Artificial Life and Robotics. October 2021. 1 p. <https://doi.org/10.1007/s10015-021-00707-w>
182. Masaki A., Nagumo K., Lamsal B. et al. Anomaly detection in facial skin temperature using variational autoencoder // Artificial Life and Robotics. 2020. pp. 122-128. <https://doi.org/10.1007/s10015-020-00634-2>
183. Masaki A., Nagumo K., Oiwa K., Nozawa A. Feature extraction for drowsiness detection using facial skin temperature distribution // 2020 Quantitative InfraRed Thermography. January 2020. DOI: [10.21611/qirt.2020.122](http://dx.doi.org/10.21611/qirt.2020.122)
184. Mehta D., Siddiqui M.F.H., Javaid A.Y. Face identification using thermal image processing // Sensors 2018; 18(2): 416. doi:10.3390/s18020416
185. Mizuno T., Kawazura S., Asano H et al. Evaluation of Autonomic Nervous Activity with Variance of Facial Skin Thermal Image // 22nd International Symposium on Artificial Life and Robotics, January 2017. Beppu, Japan.
186. Moon S., Kong S.G., Yoo J.-H., Chung K. Face recognition with multiscale data fusion of visible and thermal images // 2006 IEEE International Conference on Computational Intelligence for Homeland Security and Personal Safety. IEEE, 2006, pp. 24-27.
187. Mostafa E., Hammoud R., Ali A., Farag A. Face recognition in low resolution thermal images // Comput Vision Image Underst. 2013, 117, 1689-1694. <https://doi.org/10.1016/j.cviu.2013.07.010>
188. Müller D., Ehlen A., Valeske B. Convolutional neural networks for semantic segmentation as a tool for multiclass face analysis in thermal infrared // J. Nondestruct. Evaluation 2021, 40, 1-10. doi:10.1007/s10921-020-00740-y
189. Naemura A., Tsuda K., Suzuki N. Effects of loud noise on nasal skin temperature // Shinrigaku Kenkyu. 1993;64(1):51-54.
190. Nagumo K., Kobayashi T., Oiwa K., Nozawa A. Face Alignment in Thermal Infrared Images Using Cascaded Shape Regression // Int J Environ Res. Public Health 2021, 18, 1776. 10 pp. https://dx.doi.org/10.3390/ ijerph18041776
191. Nagumo K., Oiwa K., Nozawa A. Spatial normalization of facial thermal images using facial landmarks // Artificial Life and Robotics. October 2021. 7 pp. DOI: [10.1007/s10015-021-00703-0](http://dx.doi.org/10.1007/s10015-021-00703-0)
192. Nakagawa M., Oiwa K., Nanai Y. et al. Feature Extraction for Estimating Acute Blood Glucose Level Variation from Multi-wavelength Facial Images // in IEEE Sensors Journal. PP(99):1-1. doi: 10.1109/JSEN.2023.3299377
193. Nakamura R., Nagumo K., Oiwa K., Nozawa A. Hemodynamic Estimation Using Sparse Modeling for Facial Thermal Images // IEEJ Transactions on Electronics Information and Systems. February 2023;143(2):172-177. DOI: [10.1541/ieejeiss.143.172](http://dx.doi.org/10.1541/ieejeiss.143.172)
194. Nakane N., Nagumo K., Oiwa K., Nozawa A. Construction of model for estimating blood pressure using independent components of facial skin temperature considering time variation // 2019 4th International Conference on Intelligent Informatics and Biomedical Sciences (ICIIBMS), November 2019. DOI: [10.1109/ICIIBMS46890.2019.8991523](https://www.researchgate.net/deref/http%3A//dx.doi.org/10.1109/ICIIBMS46890.2019.8991523?_sg%5B0%5D=T6XAKbesB_LdEL2pBB3H6kan-9NCkOlaNLoHCgAV3hszIphUjxb8CmYytqx_e0YN-coTBAJtvoDnQGkKWn8Kin_lwA.jz1FZCgp6mWxmCSm_2oLRhG1hhlyrQcaeFN78BehJ8hghy2Mee-s19nfW3NuSOOoMf7jlcy_PmEBSYn3RN9vFg)
195. Nakane N., Oiwa K., Nozawa A. Relationship between mechanisms of blood pressure change and facial skin temperature distribution // Artificial Life and Robotics; October 2019. DOI: 10.1007/s10015-019-00565-7
196. Nakane N., Oiwa K., Nozawa A. Construction of a general model for estimating blood pressure using independent components of facial skin temperature in consideration of the mechanism of variation // 2020 IEEE 18th World Symposium on Applied Machine Intelligence and Informatics (SAMI), January 2020. DOI: [10.1109/SAMI48414.2020.9108769](https://www.researchgate.net/deref/http%3A//dx.doi.org/10.1109/SAMI48414.2020.9108769?_sg%5B0%5D=E7Nsd4Dke5jOdOp1GHwLWRM05MH4V3NkX8vfYPJRQzx7JKZR0WjsIl6fy8xHBbiXm2sT6qvY2zBEpxKdqaaBLnNmQQ.g_Izs6oOVfUUEOau94P2ZVaYqe3fR8BXC-pfumCp74KP5qzbooSnU9sd05Ejxm2XLlJlgbtSJWcXOON_TbGRwA)/
197. Nguyen K.T., Retraint F., Zitzmann C. Face recognition by thermal video using 3D information and features // Proceedings of the IEEE International Symposium on Signal Processing and Information Technology (ISSPIT), IEEE, Bilbao, Spain, pp. 68-73, December 2017.
198. Nhan B.R., Chau T. Infrared thermal imaging as a physiological access pathway: a study of the baseline characteristics of facial skin temperatures // Physiol Meas. 2009; 30(4): N23-N35.
199. Nhan B.R., Chau T. Classifying Affective States Using Thermal Infrared Imaging of the Human Face // IEEE Transactions on Biomedical Engineering, Vol. 57, No. 4, April 2010. P. 979-987.
200. Nomura E.Y., Balbinot L.F., Haddad D.S. et al. Estudo da temperatura emitida da face de trabalhadores assintomáticos por termografia médica // Pan American Journal of Medical Thermology. January 2022;3(1):5-9. DOI: [10.18073/2358-4696/PAJMT.V3N1P5-9](http://dx.doi.org/10.18073/2358-4696/PAJMT.V3N1P5-9) [in Portuguese]
201. Oiwa K., Bando S., Nozawa A. Contactless blood pressure sensing using facial visible and thermal images // 23rd International Symposium on Artificial Life and Robotics, Beppu, Oita, January 18-20, 2018 / Artificial Life and Robotics, July 2018. 8 pp. <https://doi.org/10.1007/s10015-018-0450-1>
202. Oiwa K., Nozawa A. Feature Extraction of Blood Pressure from Facial Skin Temperature Distribution Using Deep Learning // IEEJ Transactions on Electronics Information and Systems July 2019, 139(7):759-765. DOI: 10.1541/ieejeiss.139.759
203. Oiwa K., Okamoto R., Bando S., Nozawa A. Blind source extraction of long-term physiological signals from facial thermal images // 22nd International Symposium on Artificial Life and Robotics, Beppu, Oita, Jan 19-21, 2017. https://doi.org/10.1007/s10015-017-0423-9
204. Okamoto R., Bando S., Nozawa A. Blind signal processing of facial thermal images based on independent component analysis // IEEJ Trans Electron Inf Syst 2016. 136:1142-1148.
205. Otsuka K., Okada S., Hassan M., Togawa T. Imaging of skin thermal properties with estimation of ambient radiation // IEEE Eng. Med. Biol., Nov./Dec. 2002; 21 (6): 49-55.
206. Parvathy C.R., Hukeri M., Krishnan S.K. et al. Study of changes in surface temperature of facial region due to mobile phone radiation // 2015 International Conference on Innovations in Information, Embedded and Communication System.
207. Pavlidis I., Tsiamyrtzis P., Manohar C., Buddharaju P. Biometrics: face recognition in thermal infrared, 3rd ed., ser. Biomedical Engineering Handbook. CRC Press, 2006, ch. 29 (6?), P. 1-15.
208. Pop F.M., Gordan M., Florea C., Vlaicu A. Fusion based approach for thermal and visible face recognition under pose and expresivity variation // in 9th RoEduNet IEEE international conference. IEEE, 2010, pp. 61-66.
209. Poster D., Hu S., Nasrabad N., Riggan B. An Examination of Deep-Learning Based Landmark Detection Methods on Thermal Face Imagery // Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition Workshops, Long Beach, CA, USA, 16-20 June 2019.
210. Poster D., Hu S., Short N.J et al. Visible-to-Thermal Transfer Learning for Facial Landmark Detection // IEEE Access. March 2021. Vol. 4, 2016. 15 pp. DOI: [10.1109/ACCESS.2021.3070233](https://www.researchgate.net/deref/http%3A//dx.doi.org/10.1109/ACCESS.2021.3070233?_sg%5B0%5D=_3gWdQiIHCeup5EP1eU266MzLWPmcx21zvzbhS5egQlBwlqL47geppxpGSwAoKy2uhAGlaS6FkJK5z5MJIvVeM7KPg.ToMWPZ-igClQnjFLht7BkoyT-dpWyF8-e7-FiW3x7rOXrblT7VFCZ23cfLQZC3WMmjHFQOObL1-2JyeUV6Z1_w)
211. Poster D., Thielke M., Nguyen R. et al. A Large-Scale, Time-Synchronized Visible and Thermal Face Dataset // 2021 IEEE Winter Conference on Applications of Computer Vision (WACV), January 2021. DOI: [10.1109/WACV48630.2021.00160](http://dx.doi.org/10.1109/WACV48630.2021.00160)
212. Prokoski F.J., Riedel R.B. Infrared identification of faces and body parts // Biometrics. Springer, 1996, pp. 191-212.
213. Prokoski F.J., Riedel R.B., Coffin J.S. Identification of individuals by means of facial thermography // Proceedings 1992 International Carnahan Conference on Security Technology: Crime Countermeasures, IEEE, Atlanta, GA, USA, pp. 120-125, October 1992.
214. Qu X.X., Zhang D., Li S.Y. The observation on the normal facial acupoints of temperature and blood perfusion // Shanxi Zhongyi. 2009;30(8):1076-1078.
215. Radev A., Andonova A. Face Recognition Using Infrared Images // Annual journal of electronics, vol.5, no2, pp.146-148, 2011.
216. Rashmi R., Snekhalatha U., Salvador A.L. Raj A.N.J. Facial emotion detection using thermal and visual images based on deep learning techniques // Imaging Science Journal The. April 2023. DOI: [10.1080/13682199.2023.2199504](http://dx.doi.org/10.1080/13682199.2023.2199504)
217. Reese K., Zheng Y., Elmaghraby A.A Comparison of Face Detection Algorithms in Visible and Thermal Spectrums. Available online: <https://pdfs.semanticscholar.org/cd58/d7f2672fedf71d4ac6f7fcd71621612b2d25.pdf> (accessed on 11 September 2019).
218. Riggan B.S., Short N.J., Hu S. Optimal feature learning and discriminative framework for polarimetric thermal to visible face recognition // IEEE Winter Conf. on Application of Computer Vision (WACV), Mar. 2016. P. 1-7.
219. Riggan B.S., Short N.J., Hu S. Thermal to Visible Synthesis of Face Images using Multiple Regions // arXiv preprint, 2018. arXiv: 1803.07599 [cs.CV] 9 pp.
220. Riggan B.S., Short N.J., Hu S., Kwon H. Estimation of visible spectrum faces from polarimetric thermal faces // IEEE Int’l Conf. on Biometrics: Theory, Applications, and Systems (BTAS), 2016 IEEE 8th International Conference on. P. 1-7.
221. Rodriguez-Lozano FJ., León-García F, de Adana M.R. et al. Non-Invasive Forehead Segmentation in Thermographic Imaging // Sensors 2019, 19, 4096; 15 pp. doi:10.3390/s19194096
222. Rugb H.K., Asari V.K., Aspiras T.H. Human detection in infrared imagery using intensity distribution, gradient and texture features // Proc. SPIE 10668, Mobile Multimedia/Image Processing, Security, and Applications 2018, 106680G (14 May 2018). <https://doi.org/10.1117/12.2305389>
223. Ruiz-del-Solar J., Verschae R., Hermosilla G., Correa M. Thermal face recognition in unconstrained environments using histograms of LBP features // Local Binary Patterns: New Variants and Applications, vol. 506, pp. 219-243, 2014.
224. Rustemeyer J., Radtke A., Bremerich A. Thermography and thermoregulation of the face // Head Face Med. 2007. P. 3-17. [CrossRef] [PubMed]
225. Rytivaara, R., Näpänkangas, R., Kainulainen, T., Sipola, A., Kallio-Pulkkinen, S., Raustia, A., & Thevenot, J. Thermographic findings related to facial pain – a survey of 40 subjects // CRANIO®, 2021, 1-8.
226. Sarfraz M.S., Stiefelhagen R. Deep perceptual mapping for thermal to visible face recognition // preprint arXiv:1507.02879; British Machine Vision Conference (BMVC), Sept. 2015.
227. Sarfraz M., Stiefelhagen R. Deep perceptual mapping for thermal to visible face recognition // International Journal of Computer Vision, pp. 1-11, 2015.
228. Selinger A., Socolinsky D.A. Face Recognition in the Dark // IEEE Xplore Conference. July 2004. 0-7695-2158-4/04. 6 pp. DOI: 10.1109/CVPR.2004.68
229. Shastri D., Tsiamyrtzis P., Pavlidis I. Periorbital Thermal Signal Extraction and Applications // 30th Annual International IEEE EMBS Conference Vancouver, British Columbia, Canada, August 20-24, 2008. P. 102-105. DOI: 10.1109/IEMBS.2008.4649101
230. Shirizadeh A, Haghipour S, Sakhavati A. Physiology based face recognition in the thermal infrared spectrum // Life Sci J. 2013;10:540-545.
231. Short N.J., Yuffa A., Videen G., Hu Sh. Effects of surface materials on polarimetric-thermal measurements: applications to face recognition // Applied Optics. V. 55, N 19. July 1, 2016. P. 5226-5233. DOI: 10.1364/AO.55.005226
232. Singh J., Arora A.S. An automated approach to enhance the thermographic evaluation on orofacial regions in lateral facial thermograms // Journal of thermal biology 71 (2018): 91-98. <https://doi.org/10.1016/j.jtherbio.2017.11.001>
233. Singh S., Gyaourova A., Bebis G., Pavlidis I. Infrared and visible image fusion for face recognition // Proc. SPIE 5404, Biometric Technology for Human Identification (25 August 2004). pp. 585-596. <https://doi.org/10.1117/12.543549>
234. Socolinsky D.A., Selinger A. A comparative analysis of face recognition performance with visible and thermal infrared imagery // Proceedings ICPR, Quebec, Canada, August 2002 / Object recognition supported by user interaction for service robots, vol. 4. IEEE, 2002, pp. 217-222.
235. Socolinsky D.A., Selinger A. Face recognition with visible and thermal infrared imagery // Computer Vision and Image Understanding, July-August 2003.
236. Socolinsky D.A., Selinger A. Thermal face recognition in an operational scenario // Proceedings of the 2004 IEEE Computer Society Conference on Computer Vision and Pattern Recognition, 2004. CVPR 2004., vol. 2. IEEE, 2004, pp. II-II.
237. Socolinsky D.A., Selinger A., Neuheisel J.D. Face recognition with visible and thermal infrared imagery // Computer vision and image understanding, vol. 91, no. 1-2, pp. 72-114, 2003.
238. Socolinsky D.A., Wolff L.B., Lundberg A.J. Face recognition in low-light environments using fusion of thermal infrared and intensified imagery // Proc. SPIE 6206, Infrared Technology and Applications XXXII, 620622 (18 May 2006). <https://doi.org/10.1117/12.682604>
239. Socolinsky D.A., Wolff L.B., Neuheisel J., Eveland C. Illumination Invariant Face Recognition Using Thermal Infrared Imagery // Proceedings of the 2001 IEEE Computer Society Conference on Computer Vision and Pattern Recognition, p. I, IEEE, Kauai, HI, USA, December 2001.
240. Soiher M.G., Soiher M.I., Urakov A.L. et al. Local facial temperature can be used to identify the salivary glands, mimic and masticatory muscles (extended abstract) // Thermology International 2014; 24 (2): 60-62.
241. Sonkusare S., Ahmedt-Aristizabal D., Aburn M.J. et al. Detecting changes in facial temperature induced by a sudden auditory stimulus based on deep learning-assisted face tracking // Scientific Reports (2019) 9:4729. <https://doi.org/10.1038/s41598-019-41172-7>
242. Sun L., Zheng Z. Thermal-to-visible face alignment on edge map // IEEE Access, vol. 5, pp. 11 215-11 227, 2017.
243. Tag B., Mannschreck R., Sugiura K. et al. Facial Thermography for Attention Tracking on Smart Eyewear: An Initial Study // Proceedings of the 2017 CHI Conference Extended Abstracts on Human Factors in Computing Systems (CHI EA ’17). ACM, New York, NY, USA, 2017. 2959-2966. DOI: <http://dx.doi.org/10.1145/3027063.3053243>
244. Tag B., Chernyshov G., Kunze K. 2017. Facial Temperature Sensing on Smart Eyewear for Affective Computing // Ubicomp/Iswc ’17 Adjunct, September 11-15, 2017, Maui, Hawaii, USA. Pp. 209-212. https://doi.org/10.1145/3123024.3123084
245. Takahashi H., Oiwa K., Nozawa A. Evaluation of the effects of cold and hot environmental temperatures on the spatial distribution of facial skin temperature // 2022 7th International Conference on Intelligent Informatics and Biomedical Sciences (ICIIBMS). November 2022. DOI: [10.1109/ICIIBMS55689.2022.9971609](http://dx.doi.org/10.1109/ICIIBMS55689.2022.9971609)
246. Takano M., Iwashita Y., Nagumo K. et al. (2022). An optimization of anomaly detection algorithms considering diurnal variation in facial skin temperature using VAE // Proceedings of the 27th International Symposium on Artificial Life and Robotics (AROB 27th 2022), pp. 311-315. [in Japan].
247. Takano M., Iwashita Y., Nagumo K. et al. Optimization of facial skin temperature-based anomaly detection model considering diurnal variation // Artificial Life and Robotics. January 2023. DOI: [10.1007/s10015-023-00853-3](http://dx.doi.org/10.1007/s10015-023-00853-3)
248. Takano M., Oiwa K., Nozawa A. Construction of Facial Skin Temperature-Based Anomaly Detection Model for Daily Fluctuations in Health Conditions // 9th International Conference on Kansei Engineering and Emotion Research (KEER2022). September 2022. DOI: [10.5821/conference-9788419184849.17](http://dx.doi.org/10.5821/conference-9788419184849.17)
249. Tian T., Mei X., Yu Y. et al. Automatic Visible and Infrared Face Registration Based on Silhouette Matching and Robust Transformation Estimation // Infrared Phys. Technol. 2015, 69, 145-154. <https://doi.org/10.1016/j.infrared.2014.12.011>
250. Tian T., Yu J., Liu W. et al. Facial skin temperature and its relationship with overall thermal sensation during winter in Changsha, China // Indoor Air. October 2022;32(10). DOI: [10.1111/ina.13138](http://dx.doi.org/10.1111/ina.13138)
251. Torresan H., Turgeon B., Ibarra-Castanedo C. et al. Advanced surveillance systems: combining video and thermal imagery for pedestrian detection // Proc. SPIE 5405, Thermosense XXVI, (12 April 2004). <https://doi.org/10.1117/12.548359>
252. Tzeng H.-W., Lee H.C., Chen, M.Y. The design of isotherm face recognition technique based on nostril localization // Proceedings of the 2011 International Conference on System Science and Engineering, Macao, China, 8-10 June 2011; pp. 82-86.
253. Vardasca R. The influence of angles and distance on assessing inner-canthi of the eye skin temperature // Thermol. Int. 2017, 27, 130-135.
254. Vibashan V.S., Poster D., You S. et al. Meta-UDA: Unsupervised Domain Adaptive Thermal Object Detection using Meta-Learning // Preprint. October 2021. URL (10.10.2021): <https://www.researchgate.net/publication/355142140_Meta-UDA_Unsupervised_Domain_Adaptive_Thermal_Object_Detection_using_Meta-Learning>
255. Vigneau G.H., Verdugo J.L., Castro G.F. et al. Thermal face recognition under temporal variation conditions // IEEE Access, vol. 5, pp. 9663-9672, 2017.
256. Vilasini M., Bhuvaneswari S., Kowsika M. Thermal Image Characterization for Human Recognition // Digital Image Processing 2013, 5(8), 388-391.
257. Wang J., Sung E. Facial feature extraction in an infrared image by proxy with a visible face image // IEEE Trans Instrum Meas. 2007; 56(4):2057-2066.
258. Wang S., Liu Z., Shen P., Ji Q. Eye localization from thermal infrared images // Pattern Recognition, 2013. 46(10):2613-2621.
259. Wang Y. Human face recognition using thermal image // J. Med. Biol. Eng. 2002, 22, 97-102.
260. Wang Z. Ambient temperature normalization for infrared face recognition based on the second-order polynomial model // Proc. SPIE 9656, International Symposium on Photonics and Optoelectronics 2015, 96560O (22 August 2015). <https://doi.org/10.1117/12.2197248>
261. Wang Z., Chen Z., Wu F. Thermal to visible facial image translation using generative adversarial networks // IEEE Signal Processing Letters, vol. 25, no. 8, pp. 1161-1165, 2018.
262. Wang Z.-H., Horng G.-J., Hsu T.-H. et al. A Novel Facial Thermal Feature Extraction Method for Non-Contact Healthcare System // IEEE Access. May 2020;8:86545-86553. DOI: [10.1109/ACCESS.2020.2992908](http://dx.doi.org/10.1109/ACCESS.2020.2992908)
263. Weinstein S.A., Gelb M., Weinstein G., Weinstein E.L. Thermophysiologic anthropometry of the face in Homo sapiens // Cranio. 1990;8(3):252-257. PMID: 2083433
264. Weinstein S.A., Weinstein G., Weinstein E.L., Gelb M. Facial thermography, basis, protocol, and clinical value // Cranio, 1991. 9(3), 201-211. doi:10.1080/08869634.1991.11678368 PMID:1810666
265. Wilder J., Jonathon P.P., Cunhong J., Wiener S. Comparison of Visible and Infra-Red Imagery for Face Recognition // Proceedings of 2nd International Conference on Automatic Face & Gesture Recognition, Killington, VT, 1996, pp. 182-187.
266. Wolff L.B., Socolinsky D.A., Eveland C.K. Quantitative measurement of illumination invariance for face recognition using thermal infrared imagery // Proceedings of SPIE, Infrared Technology and Applications XXVIII, vol. 4820, Seattle, WA, USA, January 2003. p. 140-151.
267. Wong W.K., Zhao H. Eyeglasses removal of thermal image based on visible information // Information Fusion, vol. 14, no. 2, pp. 163-176, 2013.
268. Wu S., Fang Z., Xie Z. et al. Blood perfusion models for infrared face recognition. In: Delac K, Editor. Recent advances in face recognition. London, UK: InTech Open; 2008. p. 183-206.
269. Wu S., Gu Z., Chia K.A., Ong S.H. Infrared facial recognition using modified blood perfusion // Proceedings of the 6th International Conference On Information, Communications & Signal Processing, IEEE, London, UK, pp. 1-5, July 2007.
270. Wu S., Liang W., Fang Z. et al. Infrared face recognition based on modified blood perfusion model and 2DLDA in DWT domain // Proc. SPIE 7495, MIPPR 2009: Automatic Target Recognition and Image Analysis, 74954C (30 October 2009). <https://doi.org/10.1117/12.832928>
271. Wu S., Song W., Jiang L.J. et al. Infrared face recognition by using blood perfusion data // Proceedings of the Intl Conf Audio Video Based Biometric Person Authentication (New York, USA., July 20-22, 2005). P. 320-328.
272. Wu S.-Q., Wei L.-Z., Fang Z.-J. et al. Infrared face recognition based on blood perfusion and sub-block DCT in wavelet domain // 2007 International Conference on Wavelet Analysis and Pattern Recognition, vol. 3. IEEE, 2007, pp. 1252-1256.
273. Wu Z., Peng M., Chen T. Thermal Face Recognition Using Convolutional Neural Network // 2016 International Conference on Optoelectronics and Image Processing. P. 6-9. DOI: 10.1109/OPTIP.2016.7528489
274. Xie Z. Infrared face recognition based on LBP histogram and KW feature selection // Proc. SPIE 9233, International Symposium on Photonics and Optoelectronics 2014, 92330B (21 August 2014). <https://doi.org/10.1117/12.2068131>
275. Xie Z. Partial least squares regression on DCT domain for infrared face recognition // Proc. SPIE 9230, Twelfth International Conference on Photonics and Imaging in Biology and Medicine (PIBM 2014), 92301I (17 September 2014). <https://doi.org/10.1117/12.2068214>
276. Xie Z., Guodong L. Weighted Local Binary Pattern Infrared Face Recognition Based on Weber's Law // Proceedings of the Sixth International Conference on Image and Graphics ICIG '11, pp. 429-433, 2011.
277. Xie Z., Liu G. Infrared Face Recognition Based on Local Binary Pattern and Pattern Selection // Journal of Computational Information Systems vol. 7, no 12, 4367-4374, 2011.
278. Xie Z., Liu G. Separability oriented fusion of LBP and CS-LDP for infrared face recognition // Proc. SPIE 9675, AOPC 2015: Image Processing and Analysis, 96750G (8 October 2015). <https://doi.org/10.1117/12.2197386>
279. Xie Z., Liu G. Infrared face recognition based on binary particle swarm optimization and SVM-wrapper model // Proc. SPIE 9674, AOPC 2015: Optical and Optoelectronic Sensing and Imaging Technology, 96740J (15 October 2015). <https://doi.org/10.1117/12.2197388>
280. Xie Z., Liu G., Wu Z., Fang Z. A weighted block-PCA infrared face recognition method based on blood perfusion image // Proc. SPIE 7496, MIPPR 2009: Pattern Recognition and Computer Vision, 74961T (30 October 2009). <https://doi.org/10.1117/12.831321>
281. Xie Z., Wu S., He C. et al. Infrared face recognition based on blood perfusion using bio-heat transfer model // Proceedings of 2010 Chinese Conference on Pattern Recognition (CCPR), IEEE, Chongqing, China, pp. 1-4, October 2010.
282. Xie Z., Zeng J., Liu G., Fang Z. A novel infrared face recognition based on local binary pattern // Proceedings on ICWAPR 2011, pp. 55-59, 2011.
283. Yamamoto S., Oiwa K., Nozawa A. et al. Spatial Feature Extraction for Acute Blood Pressure Fluctuations in Facial Visible Images Using Sparse Coding // IEEJ Transactions on Electrical and Electronic Engineering. July 2023;18(9):1553-1555. DOI: [10.1002/tee.23869](http://dx.doi.org/10.1002/tee.23869)
284. Yoshida A., Oiwa K., Nozawa A. The optimization of sparse modeling for drowsiness estimation based on general facial skin temperature distribution // *Artif Life Robotics.* 2023. https://doi.org/10.1007/s10015-023-00898-4
285. Yoshitomi Y., Miyaura T., Tomita S., Kimura S. Face identification using thermal image processing // In Proceedings of the 6th IEEE International Workshop on Robot and Human Communication, RO-MAN’97 SENDAI, Sendai, Japan, 29 September–1 October 1997; pp. 374-379. [CrossRef]
286. Yuffa A.J., Gurton K.P., Videen G. Three-dimensional facial recognition using passive long-wavelength infrared polarimetric imaging // Applied Optics, 2014, 53:8514-8521.
287. Zaeri N. Pose invariant thermal face recognition using AMI moments // 2016 UKSim-AMSS 18th International Conference on Computer Modelling and Simulation (UKSim). IEEE, 2016, pp. 60-64.
288. Zahran E., Abbas A., Dessouky M. et al. High performance face recognition using PCA and ZM on fused LWIR and visible images on the wavelet domain // 2009 International Conference on Computer Engineering & Systems. IEEE, 2009, pp. 449-454.
289. Zenju H., Nozawa A., Tanaka H., Ide H. Estimation of unpleasant and pleasant states by Nasal thermogram // IEEJ Trans Electron Inf Syst 2004. 124:213-214.
290. Zhang D., Gao H.H., Wei Z.X. et al. Preliminary observation of imaging of facial temperature along meridians // Zhenci Yanjiu. 1992;17(1):71-74.
291. Zhang D., Gao H.H., Wen B.Z. et al. Study on the normal facial of the temperature and manifestation of infrared thermography // Zhongguo Shengwu Yixue Gongcheng Xuebao. 1992;11(2): 52-56.
292. Zhang D., Xue L., Wei Z. et al. Analysis of the relationship between the facial skin temperature and blood flow // Sheng Wu Yi Xue Gong Cheng Xue Za Zhi. 1999; 16(1):81-85. [in Chinese]
293. Zhang H., Patel V.M., Riggan B.S., Hu S. Generative adversarial network-based synthesis of visible faces from polarimetric thermal faces // International joint conference on biometrics 2017, pp. 100-107. arXiv preprint arXiv:1708.02681.
294. Zhang H., Riggan B.S., Hu S. et al. Synthesis of High-Quality Visible Faces from Polarimetric Thermal Faces using Generative Adversarial Networks // arXiv:1812.05155v1 [cs.CV] 12 Dec 2018. Preprint. 18 pp. (International Journal of Computer Vision manuscript No. (will be inserted by the editor).
295. Zhang H., Riggan B.S., Hu S. et al. Synthesis of High-Quality Visible Faces from Polarimetric Thermal Faces using Generative Adversarial Networks // International Journal of Computer Vision, Jun 2019. vol. 127, no. 6, pp. 845-862. <https://doi.org/10.1007/s11263-019-01175-3>
296. Zhang T., Wiliem A., Yang S., Lovell B. TV-GAN: Generative adversarial network based thermal to visible face recognition // 2018 International Conference on Biometrics (ICB), Feb 2018, pp. 174-181.
297. Zhang X., Tong B., Gu H. et al. Comparison of evaluation methods on changes of facial microcirculation during induction of motion sickness // Space Med Med Eng (Beijing). 1997; 10(3):182-186. [in Chinese]
298. Zheng Y. Face detection and eyeglasses detection for thermal face recognition // Proceedings of the SPIE 8300, Image 8 Mathematical Problems in Engineering Processing: Machine Vision Application V, p. 83000C, SPIE, Burlingame, CA, USA, February 2012.
299. Zhou Y., Tsiamyrtzis P., Lindner P. et al. Spatiotemporal smoothing as a basis for facial tissue tracking in thermal imaging // IEEE Trans Biomed Eng (2013) 60:1280-1289. https://doi.org/10.1109/ TBME.2012.2232927