

Bibliography

- [1] Nguyen, L. D., Lin, D., Lin, Z., and Cao, J. Deep cnns for microscopic image classification by exploiting transfer learning and feature concatenation. In *2018 IEEE international symposium on circuits and systems (ISCAS)*, pages 1–5. IEEE, 2018.
- [2] Deng, M., Goy, A., Li, S., Arthur, K., and Barbastathis, G. Probing shallower: perceptual loss trained phase extraction neural network (plt-phenn) for artifact-free reconstruction at low photon budget. *Optics express*, 28(2):2511–2535, 2020.
- [3] Popescu, D., El-Khatib, M., El-Khatib, H., and Ichim, L. New trends in melanoma detection using neural networks: a systematic review. *Sensors*, 22(2):496, 2022.
- [4] Cook, M. P. Visual representations in science education: The influence of prior knowledge and cognitive load theory on instructional design principles. *Science education*, 90(6):1073–1091, 2006.
- [5] Hendee, W. R. and Ritenour, E. R. *Medical imaging physics*. John Wiley & Sons, 2003.
- [6] Scatliff, J. H. and Morris, P. J. From roentgen to magnetic resonance imaging: the history of medical imaging. *North Carolina medical journal*, 75(2):111–113, 2014.
- [7] Breznik, E. *Image Processing and Analysis Methods for Biomedical Applications*. PhD thesis, Acta Universitatis Upsaliensis, 2023.
- [8] Rajpurkar, P. S. *Deep learning for medical image interpretation*. Stanford University, 2021.
- [9] Rui, Y., Huang, T. S., and Chang, S.-F. Image retrieval: Current techniques, promising directions, and open issues. *Journal of visual communication and image representation*, 10(1):39–62, 1999.

Bibliography

- [10] Liu, Y., Zhang, D., Lu, G., and Ma, W.-Y. A survey of content-based image retrieval with high-level semantics. *Pattern recognition*, 40(1):262–282, 2007.
- [11] Smeulders, A. W., Worring, M., Santini, S., Gupta, A., and Jain, R. Content-based image retrieval at the end of the early years. *IEEE Transactions on pattern analysis and machine intelligence*, 22(12):1349–1380, 2000.
- [12] Zhou, X. S. and Huang, T. S. Cbir: from low-level features to high-level semantics. In *Image and Video Communications and Processing 2000*, volume 3974, pages 426–431. SPIE, 2000.
- [13] Fujita, H. Ai-based computer-aided diagnosis (ai-cad): the latest review to read first. *Radiological physics and technology*, 13(1):6–19, 2020.
- [14] Jigin, M., Madhulika, M., Divya, G., Meghana, R., Apoorva, S., et al. Feature extraction using convolution neural networks (cnn) and deep learning. In *2018 3rd IEEE international conference on recent trends in electronics, information & communication technology (RTEICT)*, pages 2319–2323. IEEE, 2018.
- [15] Conci, A. and Castro, E. M. M. Image mining by content. *Expert Systems with Applications*, 23(4):377–383, 2002.
- [16] Gonzalez, R. C. *Digital image processing*. Pearson education india, 2009.
- [17] Deep, G., Kaur, L., and Gupta, S. Directional local ternary quantized extrema pattern: a new descriptor for biomedical image indexing and retrieval. *Engineering science and technology, an international journal*, 19(4):1895–1909, 2016.
- [18] Dubey, S. R., Roy, S. K., Chakraborty, S., Mukherjee, S., and Chaudhuri, B. B. Local bit-plane decoded convolutional neural network features for biomedical image retrieval. *Neural Computing and Applications*, 32:7539–7551, 2020.
- [19] Rajpal, S., Lakhani, N., Singh, A. K., Kohli, R., and Kumar, N. Using handpicked features in conjunction with resnet-50 for improved detection of covid-19 from chest x-ray images. *Chaos, Solitons & Fractals*, 145:110749, 2021.
- [20] Ojala, T., Pietikäinen, M., and Harwood, D. A comparative study of texture measures with classification based on featured distributions. *Pattern recognition*, 29(1):51–59, 1996.

Bibliography

- [21] Dubey, S. R., Singh, S. K., and Singh, R. K. Local wavelet pattern: a new feature descriptor for image retrieval in medical ct databases. *IEEE Transactions on Image Processing*, 24(12):5892–5903, 2015.
- [22] Murala, S. and Wu, Q. J. Local mesh patterns versus local binary patterns: biomedical image indexing and retrieval. *IEEE journal of biomedical and health informatics*, 18(3):929–938, 2013.
- [23] Murala, S. and Wu, Q. J. Local ternary co-occurrence patterns: a new feature descriptor for mri and ct image retrieval. *Neurocomputing*, 119:399–412, 2013.
- [24] Murala, S. and Wu, Q. J. Mri and ct image indexing and retrieval using local mesh peak valley edge patterns. *Signal processing: image communication*, 29(3):400–409, 2014.
- [25] Dubey, S. R., Singh, S. K., and Singh, R. K. Local diagonal extrema pattern: a new and efficient feature descriptor for ct image retrieval. *IEEE Signal Processing Letters*, 22(9):1215–1219, 2015.
- [26] Dubey, S. R., Singh, S. K., and Singh, R. K. Local bit-plane decoded pattern: a novel feature descriptor for biomedical image retrieval. *IEEE Journal of Biomedical and Health Informatics*, 20(4):1139–1147, 2015.
- [27] Dubey, S. R., Singh, S. K., and Singh, R. K. Novel local bit-plane dissimilarity pattern for computed tomography image retrieval. *Electronics Letters*, 52(15):1290–1292, 2016.
- [28] Hatibaruah, R., Nath, V. K., and Hazarika, D. Computed tomography image retrieval via combination of two local bit plane-based dissimilarities using an adder. *International Journal of Wavelets, Multiresolution and Information Processing*, 19(01):2050058, 2021.
- [29] Hatibaruah, R., Nath, V. K., and Hazarika, D. Local bit plane adjacent neighborhood dissimilarity pattern for medical ct image retrieval. *Procedia Computer Science*, 165:83–89, 2019.
- [30] Baruah, H. G., Nath, V. K., Hazarika, D., and Hatibaruah, R. Local bit-plane neighbour dissimilarity pattern in non-subsampled shearlet transform domain for bio-medical image retrieval. *Mathematical Biosciences and Engineering: MBE*, 19(2):1609–1632, 2021.
- [31] Roy, S. K., Chanda, B., Chaudhuri, B. B., Banerjee, S., Ghosh, D. K., and Dubey, S. R. Local directional zigzag pattern: A rotation invariant

Bibliography

- descriptor for texture classification. *Pattern Recognition Letters*, 108:23–30, 2018.
- [32] Roy, S. K., Dubey, S. R., and Chaudhuri, B. B. Local zigzag max histograms of pooling pattern for texture classification. *Electronics Letters*, 55(7):382–384, 2019.
- [33] Lindeberg, T. Scale-space theory: A basic tool for analyzing structures at different scales. *Journal of applied statistics*, 21(1-2):225–270, 1994.
- [34] Chan, C.-H., Kittler, J., and Messer, K. Multi-scale local binary pattern histograms for face recognition. In *Advances in Biometrics: International Conference, ICB 2007, Seoul, Korea, August 27-29, 2007. Proceedings*, pages 809–818. Springer, 2007.
- [35] Hatibaruah, R., Nath, V. K., and Hazarika, D. Biomedical ct image retrieval using 3d local oriented zigzag fused pattern. In *2020 National Conference on Communications (NCC)*, pages 1–6. IEEE, 2020.
- [36] Hatibaruah, R., Nath, V. K., and Hazarika, D. 3d-local oriented zigzag ternary co-occurrence fused pattern for biomedical ct image retrieval. *Biomedical Engineering Letters*, 10:345–357, 2020.
- [37] Kong, L. and Cheng, J. Classification and detection of covid-19 x-ray images based on densenet and vgg16 feature fusion. *Biomedical Signal Processing and Control*, 77:103772, 2022.
- [38] Baghdadi, N. A., Malki, A., Abdelaliem, S. F., Balaha, H. M., Badawy, M., and Elhosseini, M. An automated diagnosis and classification of covid-19 from chest ct images using a transfer learning-based convolutional neural network. *Computers in biology and medicine*, 144:105383, 2022.
- [39] Dilshad, S., Singh, N., Atif, M., Hanif, A., Yaqub, N., Farooq, W., Ahmad, H., Chu, Y.-m., and Masood, M. T. Automated image classification of chest x-rays of covid-19 using deep transfer learning. *Results in physics*, 28:104529, 2021.
- [40] Gayathri, J., Abraham, B., Sujarani, M., and Nair, M. S. A computer-aided diagnosis system for the classification of covid-19 and non-covid-19 pneumonia on chest x-ray images by integrating cnn with sparse autoencoder and feed forward neural network. *Computers in biology and medicine*, 141:105134, 2022.

Bibliography

- [41] Barshooi, A. H. and Amirkhani, A. A novel data augmentation based on gabor filter and convolutional deep learning for improving the classification of covid-19 chest x-ray images. *Biomedical Signal Processing and Control*, 72:103326, 2022.
- [42] Loey, M., El-Sappagh, S., and Mirjalili, S. Bayesian-based optimized deep learning model to detect covid-19 patients using chest x-ray image data. *Computers in Biology and Medicine*, 142:105213, 2022.
- [43] Hosseinzadeh, H. Deep multi-view feature learning for detecting covid-19 based on chest x-ray images. *Biomedical Signal Processing and Control*, 75:103595, 2022.
- [44] Shan, P., Fu, C., Dai, L., Jia, T., Tie, M., and Liu, J. Automatic skin lesion classification using a new densely connected convolutional network with an sf module. *Medical & Biological Engineering & Computing*, 60(8):2173–2188, 2022.
- [45] Afza, F., Sharif, M., Khan, M. A., Tariq, U., Yong, H.-S., and Cha, J. Multiclass skin lesion classification using hybrid deep features selection and extreme learning machine. *Sensors*, 22(3):799, 2022.
- [46] Agarwal, M., Singhal, A., and Lall, B. 3d local ternary co-occurrence patterns for natural, texture, face and bio medical image retrieval. *Neurocomputing*, 313:333–345, 2018.
- [47] Mohite, N., Waghmare, L., Gonde, A., and Vipparthi, S. 3d local circular difference patterns for biomedical image retrieval. *International Journal of Multimedia Information Retrieval*, 8:115–125, 2019.
- [48] Murala, S. and Wu, Q. J. Spherical symmetric 3d local ternary patterns for natural, texture and biomedical image indexing and retrieval. *Neurocomputing*, 149:1502–1514, 2015.
- [49] Liu, L., Chen, J., Fieguth, P., Zhao, G., Chellappa, R., and Pietikäinen, M. From bow to cnn: Two decades of texture representation for texture classification. *International Journal of Computer Vision*, 127:74–109, 2019.
- [50] Tomita, F. and Tsuji, S. *Computer analysis of visual textures*, volume 102. Springer Science & Business Media, 2013.
- [51] Haralick, R. M., Shanmugam, K., and Dinstein, I. H. Textural features for image classification. *IEEE Transactions on systems, man, and cybernetics*, (6):610–621, 1973.

Bibliography

- [52] Dalal, N. and Triggs, B. Histograms of oriented gradients for human detection. In *2005 IEEE computer society conference on computer vision and pattern recognition (CVPR'05)*, volume 1, pages 886–893. Ieee, 2005.
- [53] Lowe, D. G. Distinctive image features from scale-invariant keypoints. *International journal of computer vision*, 60:91–110, 2004.
- [54] Bay, H., Ess, A., Tuytelaars, T., and Van Gool, L. Speeded-up robust features (surf). *Computer vision and image understanding*, 110(3):346–359, 2008.
- [55] Pietikäinen, M., Ojala, T., and Xu, Z. Rotation-invariant texture classification using feature distributions. *Pattern recognition*, 33(1):43–52, 2000.
- [56] Ojala, T., Pietikainen, M., and Maenpaa, T. Multiresolution gray-scale and rotation invariant texture classification with local binary patterns. *IEEE Transactions on pattern analysis and machine intelligence*, 24(7):971–987, 2002.
- [57] Guo, Z., Zhang, L., and Zhang, D. A completed modeling of local binary pattern operator for texture classification. *IEEE transactions on image processing*, 19(6):1657–1663, 2010.
- [58] Tan, X. and Triggs, B. Enhanced local texture feature sets for face recognition under difficult lighting conditions. *IEEE transactions on image processing*, 19(6):1635–1650, 2010.
- [59] Zhang, B., Gao, Y., Zhao, S., and Liu, J. Local derivative pattern versus local binary pattern: face recognition with high-order local pattern descriptor. *IEEE transactions on image processing*, 19(2):533–544, 2009.
- [60] Heikkilä, M., Pietikäinen, M., and Schmid, C. Description of interest regions with center-symmetric local binary patterns. In *Computer Vision, Graphics and Image Processing: 5th Indian Conference, ICVGIP 2006, Madurai, India, December 13-16, 2006. Proceedings*, pages 58–69. Springer, 2006.
- [61] Verma, M. and Raman, B. Center symmetric local binary co-occurrence pattern for texture, face and bio-medical image retrieval. *Journal of Visual Communication and Image Representation*, 32:224–236, 2015.
- [62] Murala, S. and Wu, Q. J. Mri and ct image indexing and retrieval using local mesh peak valley edge patterns. *Signal processing: image communication*, 29(3):400–409, 2014.

Bibliography

- [63] Shinde, A., Rahulkar, A., and Patil, C. Content based medical image retrieval based on new efficient local neighborhood wavelet feature descriptor. *Biomedical engineering letters*, 9:387–394, 2019.
- [64] Ashraf, R., Ahmed, M., Jabbar, S., Khalid, S., Ahmad, A., Din, S., and Jeon, G. Content based image retrieval by using color descriptor and discrete wavelet transform. *Journal of medical systems*, 42:1–12, 2018.
- [65] Dong, Y., Tao, D., Li, X., Ma, J., and Pu, J. Texture classification and retrieval using shearlets and linear regression. *IEEE transactions on cybernetics*, 45(3):358–369, 2014.
- [66] Wang, X., Yang, H., Gao, S., and Niu, P. Texture image retrieval using dnst domain local neighborhood intensity pattern. *Multimedia Tools and Applications*, 81(20):29525–29554, 2022.
- [67] Paulhac, L., Makris, P., and Ramel, J.-Y. Comparison between 2d and 3d local binary pattern methods for characterisation of three-dimensional textures. In *Image Analysis and Recognition: 5th International Conference, ICIAR 2008, Póvoa de Varzim, Portugal, June 25–27, 2008. Proceedings 5*, pages 670–679. Springer, 2008.
- [68] Citraro, L., Mahmoodi, S., Darekar, A., and Vollmer, B. Extended three-dimensional rotation invariant local binary patterns. *Image and vision Computing*, 62:8–18, 2017.
- [69] Adedigba, A. P., Adeshina, S. A., Aina, O. E., and Aibinu, A. M. Optimal hyperparameter selection of deep learning models for covid-19 chest x-ray classification. *Intelligence-based medicine*, 5:100034, 2021.
- [70] Turkoglu, M. Covidetectionet: Covid-19 diagnosis system based on x-ray images using features selected from pre-learned deep features ensemble. *Applied Intelligence*, 51(3):1213–1226, 2021.
- [71] Aslan, M. F., Sabancı, K., Durdu, A., and Unlersen, M. F. Covid-19 diagnosis using state-of-the-art cnn architecture features and bayesian optimization. *Computers in biology and medicine*, 142:105244, 2022.
- [72] Bohmrah, M. K. and Kaur, H. Classification of covid-19 patients using efficient fine-tuned deep learning densenet model. *Global Transitions Proceedings*, 2(2):476–483, 2021.

Bibliography

- [73] Dash, A. K. and Mohapatra, P. A fine-tuned deep convolutional neural network for chest radiography image classification on covid-19 cases. *Multimedia Tools and Applications*, pages 1–21, 2022.
- [74] Aggarwal, S., Gupta, S., Alhudhaif, A., Koundal, D., Gupta, R., and Polat, K. Automated covid-19 detection in chest x-ray images using fine-tuned deep learning architectures. *Expert Systems*, 39(3):e12749, 2022.
- [75] El-Shafai, W., Algarni, A. D., El Banby, G. M., El-Samie, A., Fathi, E., and Soliman, N. F. Classification framework for covid-19 diagnosis based on deep cnn models. *Intelligent Automation & Soft Computing*, 31(3), 2022.
- [76] Hu, T., Khishe, M., Mohammadi, M., Parvizi, G.-R., Karim, S. H. T., and Rashid, T. A. Real-time covid-19 diagnosis from x-ray images using deep cnn and extreme learning machines stabilized by chimp optimization algorithm. *Biomedical Signal Processing and Control*, 68:102764, 2021.
- [77] Chamseddine, E., Mansouri, N., Soui, M., and Abed, M. Handling class imbalance in covid-19 chest x-ray images classification: Using smote and weighted loss. *Applied Soft Computing*, 129:109588, 2022.
- [78] Dhere, A. and Sivaswamy, J. Covid detection from chest x-ray images using multi-scale attention. *IEEE Journal of Biomedical and Health Informatics*, 26(4):1496–1505, 2022.
- [79] Li, J., Wang, Y., Wang, S., Wang, J., Liu, J., Jin, Q., and Sun, L. Multiscale attention guided network for covid-19 diagnosis using chest x-ray images. *IEEE Journal of Biomedical and Health Informatics*, 25(5):1336–1346, 2021.
- [80] Chauhan, T., Palivela, H., and Tiwari, S. Optimization and fine-tuning of densenet model for classification of covid-19 cases in medical imaging. *International Journal of Information Management Data Insights*, 1(2):100020, 2021.
- [81] Abraham, B. and Nair, M. S. Computer-aided detection of covid-19 from x-ray images using multi-cnn and bayesnet classifier. *Biocybernetics and biomedical engineering*, 40(4):1436–1445, 2020.
- [82] Sharma, A., Singh, K., and Koundal, D. A novel fusion based convolutional neural network approach for classification of covid-19 from chest x-ray images. *Biomedical Signal Processing and Control*, 77:103778, 2022.

Bibliography

- [83] Kong, L. and Cheng, J. Classification and detection of covid-19 x-ray images based on densenet and vgg16 feature fusion. *Biomedical Signal Processing and Control*, 77:103772, 2022.
- [84] Liu, J., Sun, W., Zhao, X., Zhao, J., and Jiang, Z. Deep feature fusion classification network (dffcnet): Towards accurate diagnosis of covid-19 using chest x-rays images. *Biomedical Signal Processing and Control*, 76:103677, 2022.
- [85] Bozkurt, F. A deep and handcrafted features-based framework for diagnosis of covid-19 from chest x-ray images. *Concurrency and Computation: Practice and Experience*, 34(5):e6725, 2022.
- [86] Shankar, K. and Perumal, E. A novel hand-crafted with deep learning features based fusion model for covid-19 diagnosis and classification using chest x-ray images. *Complex & Intelligent Systems*, 7(3):1277–1293, 2021.
- [87] Malik, H., Anees, T., Chaudhry, M. U., Gono, R., Jasiński, M., Leonowicz, Z., and Bernat, P. A novel fusion model of hand-crafted features with deep convolutional neural networks for classification of several chest diseases using x-ray images. *IEEE Access*, 11:39243–39268, 2023.
- [88] Shankar, K., Perumal, E., Tiwari, P., Shorfuzzaman, M., and Gupta, D. Deep learning and evolutionary intelligence with fusion-based feature extraction for detection of covid-19 from chest x-ray images. *Multimedia Systems*, 28(4):1175–1187, 2022.
- [89] Sahlol, A. T., Yousri, D., Ewees, A. A., Al-Qaness, M. A., Damasevicius, R., and Elaziz, M. A. Covid-19 image classification using deep features and fractional-order marine predators algorithm. *Scientific reports*, 10(1):15364, 2020.
- [90] Narin, A. Accurate detection of covid-19 using deep features based on x-ray images and feature selection methods. *Computers in Biology and Medicine*, 137:104771, 2021.
- [91] Yousri, D., Abd Elaziz, M., Abualigah, L., Oliva, D., Al-Qaness, M. A., and Ewees, A. A. Covid-19 x-ray images classification based on enhanced fractional-order cuckoo search optimizer using heavy-tailed distributions. *Applied Soft Computing*, 101:107052, 2021.
- [92] Gopatoti, A. and Vijayalakshmi, P. Cxgnet: A tri-phase chest x-ray image classification for covid-19 diagnosis using deep cnn with enhanced grey-wolf optimizer. *Biomedical signal processing and control*, 77:103860, 2022.

Bibliography

- [93] Khan, A. I., Shah, J. L., and Bhat, M. M. Coronet: A deep neural network for detection and diagnosis of covid-19 from chest x-ray images. *Computer methods and programs in biomedicine*, 196:105581, 2020.
- [94] Al-falluji, R. A., Katheeth, Z. D., and Alathari, B. Automatic detection of covid-19 using chest x-ray images and modified resnet18-based convolution neural networks. *Computers, Materials & Continua*, 2021.
- [95] Elpeltagy, M. and Sallam, H. Automatic prediction of covid- 19 from chest images using modified resnet50. *Multimedia tools and applications*, 80(17):26451–26463, 2021.
- [96] Jia, G., Lam, H.-K., and Xu, Y. Classification of covid-19 chest x-ray and ct images using a type of dynamic cnn modification method. *Computers in biology and medicine*, 134:104425, 2021.
- [97] Haruna, U., Ali, R., and Man, M. A new modification cnn using vgg19 and resnet50v2 for classification of covid-19 from x-ray radiograph images. *Indonesian Journal of Electrical Engineering and Computer Science*, 31(1):369–377, 2023.
- [98] Zhao, C., Shuai, R., Ma, L., Liu, W., Hu, D., and Wu, M. Dermoscopy image classification based on stylegan and densenet201. *Ieee Access*, 9:8659–8679, 2021.
- [99] Ali, K., Shaikh, Z. A., Khan, A. A., and Laghari, A. A. Multiclass skin cancer classification using efficientnets—a first step towards preventing skin cancer. *Neuroscience Informatics*, 2(4):100034, 2022.
- [100] Qin, Z., Liu, Z., Zhu, P., and Xue, Y. A gan-based image synthesis method for skin lesion classification. *Computer Methods and Programs in Biomedicine*, 195:105568, 2020.
- [101] Kassem, M. A., Hosny, K. M., and Fouad, M. M. Skin lesions classification into eight classes for isic 2019 using deep convolutional neural network and transfer learning. *IEEE Access*, 8:114822–114832, 2020.
- [102] Rashid, J., Ishfaq, M., Ali, G., Saeed, M. R., Hussain, M., Alkhailah, T., Alturise, F., and Samand, N. Skin cancer disease detection using transfer learning technique. *Applied Sciences*, 12(11):5714, 2022.
- [103] Nigar, N., Umar, M., Shahzad, M. K., Islam, S., and Abalo, D. A deep learning approach based on explainable artificial intelligence for skin lesion classification. *IEEE Access*, 10:113715–113725, 2022.

Bibliography

- [104] Pacheco, A. G. and Krohling, R. A. An attention-based mechanism to combine images and metadata in deep learning models applied to skin cancer classification. *IEEE journal of biomedical and health informatics*, 25(9):3554–3563, 2021.
- [105] Zhang, J., Xie, Y., Xia, Y., and Shen, C. Attention residual learning for skin lesion classification. *IEEE transactions on medical imaging*, 38(9):2092–2103, 2019.
- [106] Bian, J., Zhang, S., Wang, S., Zhang, J., and Guo, J. Skin lesion classification by multi-view filtered transfer learning. *IEEE Access*, 9:66052–66061, 2021.
- [107] Wan, Y., Cheng, Y., and Shao, M. Msplanet: multi-scale long attention network for skin lesion classification. *Applied Intelligence*, 53(10):12580–12598, 2023.
- [108] Almaraz-Damian, J.-A., Ponomaryov, V., Sadovnychiy, S., and Castillejos-Fernandez, H. Melanoma and nevus skin lesion classification using handcraft and deep learning feature fusion via mutual information measures. *Entropy*, 22(4):484, 2020.
- [109] Ichim, L. and Popescu, D. Melanoma detection using an objective system based on multiple connected neural networks. *IEEE Access*, 8:179189–179202, 2020.
- [110] Sharma, A. K., Tiwari, S., Aggarwal, G., Goenka, N., Kumar, A., Chakrabarti, P., Chakrabarti, T., Gono, R., Leonowicz, Z., and Jasiński, M. Dermatologist-level classification of skin cancer using cascaded ensembling of convolutional neural network and handcrafted features based deep neural network. *IEEE Access*, 10:17920–17932, 2022.
- [111] Mahum, R. and Aladhadh, S. Skin lesion detection using hand-crafted and dl-based features fusion and lstm. *Diagnostics*, 12(12):2974, 2022.
- [112] Gong, A., Yao, X., and Lin, W. Dermoscopy image classification based on stylegans and decision fusion. *Ieee Access*, 8:70640–70650, 2020.
- [113] Popescu, D., El-Khatib, M., and Ichim, L. Skin lesion classification using collective intelligence of multiple neural networks. *Sensors*, 22(12):4399, 2022.

Bibliography

- [114] Gouda, W., Sama, N. U., Al-Waakid, G., Humayun, M., and Jhanjhi, N. Z. Detection of skin cancer based on skin lesion images using deep learning. In *Healthcare*, volume 10, page 1183. MDPI, 2022.
- [115] Jasil, S. G. and Ulagamuthalvi, V. A hybrid cnn architecture for skin lesion classification using deep learning. *Soft Computing*, pages 1–10, 2023.
- [116] Venugopal, V., Raj, N. I., Nath, M. K., and Stephen, N. A deep neural network using modified efficientnet for skin cancer detection in dermoscopic images. *Decision Analytics Journal*, 8:100278, 2023.
- [117] Mahbod, A., Schaefer, G., Ellinger, I., Ecker, R., Pitiot, A., and Wang, C. Fusing fine-tuned deep features for skin lesion classification. *Computerized Medical Imaging and Graphics*, 71:19–29, 2019.
- [118] Shan, P., Fu, C., Dai, L., Jia, T., Tie, M., and Liu, J. Automatic skin lesion classification using a new densely connected convolutional network with an sf module. *Medical & Biological Engineering & Computing*, 60(8):2173–2188, 2022.
- [119] Lan, Z., Cai, S., He, X., and Wen, X. Fixcaps: An improved capsules network for diagnosis of skin cancer. *IEEE Access*, 10:76261–76267, 2022.
- [120] Sae-Lim, W., Wettayaprasit, W., and Aiyarak, P. Convolutional neural networks using mobilenet for skin lesion classification. In *2019 16th international joint conference on computer science and software engineering (JCSSE)*, pages 242–247. IEEE, 2019.
- [121] Rahman, Z., Hossain, M. S., Islam, M. R., Hasan, M. M., and Hridhee, R. A. An approach for multiclass skin lesion classification based on ensemble learning. *Informatics in Medicine Unlocked*, 25:100659, 2021.
- [122] Afza, F., Sharif, M., Mittal, M., Khan, M. A., and Hemanth, D. J. A hierarchical three-step superpixels and deep learning framework for skin lesion classification. *Methods*, 202:88–102, 2022.
- [123] Anjum, M. A., Amin, J., Sharif, M., Khan, H. U., Malik, M. S. A., and Kadry, S. Deep semantic segmentation and multi-class skin lesion classification based on convolutional neural network. *IEEE Access*, 8:129668–129678, 2020.
- [124] Hussain, M., Khan, M. A., Damaševičius, R., Alasiry, A., Marzougui, M., Al-haisoni, M., and Masood, A. Skinnet-inio: multiclass skin lesion localization

Bibliography

- and classification using fusion-assisted deep neural networks and improved nature-inspired optimization algorithm. *Diagnostics*, 13(18):2869, 2023.
- [125] NEMA-CT. National electrical manufacturer's association (nema) ct image dataset, Last accessed in 2016.
- [126] TCIA. The cancer imaging archive (tcia) ct image dataset, Last accessed in 2019.
- [127] YORK. York mri dataset, Last accessed in 2017.
- [128] Verma, M. and Raman, B. Center symmetric local binary co-occurrence pattern for texture, face and bio-medical image retrieval. *Journal of Visual Communication and Image Representation*, 32:224–236, 2015.
- [129] Yan, Q., Wang, B., Gong, D., Luo, C., Zhao, W., Shen, J., Ai, J., Shi, Q., Zhang, Y., Jin, S., Zhang, L., and You, Z. Covid-19 chest ct image segmentation network by multi-scale fusion and enhancement operations. *IEEE Transactions on Big Data*, 7(1):13–24, 2021.
- [130] Ebenezer, A. S., Kanmani, S. D., Sivakumar, M., and Priya, S. J. Effect of image transformation on efficientnet model for covid-19 ct image classification. *Materials Today: Proceedings*, 51:2512–2519, 2022.
- [131] Thakur, S. and Kumar, A. X-ray and ct-scan-based automated detection and classification of covid-19 using convolutional neural networks (cnn). *Biomedical Signal Processing and Control*, 69:102920, 2021.
- [132] Goodfellow, I., Pouget-Abadie, J., Mirza, M., Xu, B., Warde-Farley, D., Ozair, S., Courville, A., and Bengio, Y. Generative adversarial nets. *Advances in neural information processing systems*, 27, 2014.
- [133] Srivastava, G., Chauhan, A., Jangid, M., and Chaurasia, S. Covixnet: A novel and efficient deep learning model for detection of covid-19 using chest x-ray images. *Biomedical Signal Processing and Control*, 78:103848, 2022.
- [134] Zhu, H., Sun, W., Wu, M., Guan, G., and Guan, Y. Pre-processing of x-ray medical image based on improved temporal recursive self-adaptive filter. In *2008 The 9th International Conference for Young Computer Scientists*, pages 758–763. IEEE, 2008.
- [135] Rahman, T., Khandakar, A., Qiblawey, Y., Tahir, A., Kiranyaz, S., Kashem, S. B. A., Islam, M. T., Al Maadeed, S., Zughraier, S. M., Khan, M. S., et al. Exploring the effect of image enhancement techniques on covid-19 detection

Bibliography

- using chest x-ray images. *Computers in biology and medicine*, 132:104319, 2021.
- [136] Reza, A. M. Realization of the contrast limited adaptive histogram equalization (clahe) for real-time image enhancement. *Journal of VLSI signal processing systems for signal, image and video technology*, 38:35–44, 2004.
- [137] Connor, S. and Khoshgoftaar, T. M. A survey on image data augmentation for deep learning. *Journal of big data*, 6(1):1–48, 2019.
- [138] El Asnaoui, K. Design ensemble deep learning model for pneumonia disease classification. *International Journal of Multimedia Information Retrieval*, 10(1):55–68, 2021.
- [139] Chlap, P., Min, H., Vandenberg, N., Dowling, J., Holloway, L., and Haworth, A. A review of medical image data augmentation techniques for deep learning applications. *Journal of Medical Imaging and Radiation Oncology*, 65(5):545–563, 2021.
- [140] Moses, D. A. Deep learning applied to automatic disease detection using chest x-rays. *Journal of Medical Imaging and Radiation Oncology*, 65(5):498–517, 2021.
- [141] Alzubaidi, L., Zhang, J., Humaidi, A. J., Al-Dujaili, A., Duan, Y., Al-Shamma, O., Santamaría, J., Fadhel, M. A., Al-Amidie, M., and Farhan, L. Review of deep learning: Concepts, cnn architectures, challenges, applications, future directions. *Journal of big Data*, 8:1–74, 2021.
- [142] Khalifa, N. E., Loey, M., and Mirjalili, S. A comprehensive survey of recent trends in deep learning for digital images augmentation. *Artificial Intelligence Review*, pages 1–27, 2022.
- [143] Goel, T., Murugan, R., Mirjalili, S., and Chakrabartty, D. K. Automatic screening of covid-19 using an optimized generative adversarial network. *Cognitive computation*, pages 1–16, 2021.
- [144] Lin, C., Li, L., Luo, W., Wang, K. C., and Guo, J. Transfer learning based traffic sign recognition using inception-v3 model. *Periodica Polytechnica Transportation Engineering*, 47(3):242–250, 2019.
- [145] Kim, H. E., Cosa-Linan, A., Santhanam, N., Jannesari, M., Maros, M. E., and Ganslandt, T. Transfer learning for medical image classification: a literature review. *BMC medical imaging*, 22(1):69, 2022.

Bibliography

- [146] Bargshady, G., Zhou, X., Barua, P. D., Gururajan, R., Li, Y., and Acharya, U. R. Application of cyclegan and transfer learning techniques for automated detection of covid-19 using x-ray images. *Pattern Recognition Letters*, 153:67–74, 2022.
- [147] Sait, U., Kv, G. L., Prajapati, S. P., Bhaumik, R., Kumar, T., Shivakumar, S., and Bhalla, K. Curated dataset for covid-19 posterior-anterior chest radiography images (x-rays). 2020.
- [148] Aslan, M. F., Sabanci, K., Durdu, A., and Unlersen, M. F. Covid-19 diagnosis using state-of-the-art cnn architecture features and bayesian optimization. *Computers in biology and medicine*, page 105244, 2022.
- [149] Kumar, S. and Mallik, A. Covid-19 detection from chest x-rays using trained output based transfer learning approach. *Neural processing letters*, pages 1–24, 2022.
- [150] Luz, E., Silva, P., Pedrosa Silva, R., Silva, L., Guimarães, J., Miozzo, G., Moreira, G., and Menotti, D. Towards an effective and efficient deep learning model for covid-19 patterns detection in x-ray images. *Research on Biomedical Engineering*, 38, 04 2021.
- [151] Ozturk, T., Talo, M., Yildirim, E. A., Baloglu, U. B., Yildirim, O., and Acharya, U. R. Automated detection of covid-19 cases using deep neural networks with x-ray images. *Computers in biology and medicine*, 121:103792, 2020.
- [152] Montalbo, F. J. Diagnosing covid-19 chest x-rays with a lightweight truncated densenet with partial layer freezing and feature fusion. *Biomedical Signal Processing and Control*, 68, 04 2021.
- [153] Khalifa, N. E., Loey, M., and Mirjalili, S. A comprehensive survey of recent trends in deep learning for digital images augmentation. *Artificial Intelligence Review*, pages 1–27, 2022.
- [154] Shorten, C. and Khoshgoftaar, T. M. A survey on image data augmentation for deep learning. *Journal of big data*, 6(1):1–48, 2019.
- [155] Chlap, P., Min, H., Vandenberg, N., Dowling, J., Holloway, L., and Haworth, A. A review of medical image data augmentation techniques for deep learning applications. *Journal of Medical Imaging and Radiation Oncology*, 65(5):545–563, 2021.

Bibliography

- [156] Liu, J., Sun, W., Zhao, X., Zhao, J., and Jiang, Z. Deep feature fusion classification network (dffcnet): Towards accurate diagnosis of covid-19 using chest x-rays images. *Biomedical Signal Processing and Control*, 76:103677, 2022.
- [157] Aslan, M. F., Sabanci, K., Durdu, A., and Unlersen, M. F. Covid-19 diagnosis using state-of-the-art cnn architecture features and bayesian optimization. *Computers in biology and medicine*, page 105244, 2022.
- [158] Ouchicha, C., Ammor, O., and Meknassi, M. Cvdnet: A novel deep learning architecture for detection of coronavirus (covid-19) from chest x-ray images. *Chaos, Solitons & Fractals*, 140:110245, 2020.
- [159] Ali, M. S., Miah, M. S., Haque, J., Rahman, M. M., and Islam, M. K. An enhanced technique of skin cancer classification using deep convolutional neural network with transfer learning models. *Machine Learning with Applications*, 5:100036, 2021.
- [160] Khan, M. A., Muhammad, K., Sharif, M., Akram, T., and de Albuquerque, V. H. C. Multi-class skin lesion detection and classification via teledermatology. *IEEE journal of biomedical and health informatics*, 25(12):4267–4275, 2021.
- [161] Ali, A.-R. H., Li, J., and Yang, G. Automating the abcd rule for melanoma detection: a survey. *IEEE Access*, 8:83333–83346, 2020.
- [162] Al-Masni, M. A., Kim, D.-H., and Kim, T.-S. Multiple skin lesions diagnostics via integrated deep convolutional networks for segmentation and classification. *Computer methods and programs in biomedicine*, 190:105351, 2020.
- [163] Yi, X., Walia, E., and Babyn, P. Generative adversarial network in medical imaging: A review. *Medical image analysis*, 58:101552, 2019.
- [164] Pathak, D. and Raju, U. Content-based image retrieval using group normalized-inception-darknet-53. *International Journal of Multimedia Information Retrieval*, 10(3):155–170, 2021.
- [165] Al-Jabbar, M., Al-Mansor, E., Abdel-Khalek, S., and Alkhalaif, S. Ebola optimization with modified darknet-53 model for scene classification and security on internet of things in smart cities. *Alexandria Engineering Journal*, 75:29–40, 2023.

Bibliography

- [166] Kaya, Y. and Gürsoy, E. A mobilenet-based cnn model with a novel fine-tuning mechanism for covid-19 infection detection. *Soft Computing*, 27(9):5521–5535, 2023.
- [167] Codella, N., Rotemberg, V., Tschandl, P., Celebi, M. E., Dusza, S., Gutman, D., Helba, B., Kalloo, A., Liopyris, K., Marchetti, M., et al. Skin lesion analysis toward melanoma detection 2018: A challenge hosted by the international skin imaging collaboration (isic). *arXiv preprint arXiv:1902.03368*, 2019.
- [168] Tschandl, P., Rosendahl, C., and Kittler, H. The ham10000 dataset, a large collection of multi-source dermatoscopic images of common pigmented skin lesions. *Scientific data*, 5(1):1–9, 2018.
- [169] Combalia, M., Codella, N. C., Rotemberg, V., Helba, B., Vilaplana, V., Reiter, O., Carrera, C., Barreiro, A., Halpern, A. C., Puig, S., et al. Bcn20000: Dermoscopic lesions in the wild. *arXiv preprint arXiv:1908.02288*, 2019.
- [170] Iqbal, I., Younus, M., Walayat, K., Kakar, M. U., and Ma, J. Automated multi-class classification of skin lesions through deep convolutional neural network with dermoscopic images. *Computerized medical imaging and graphics*, 88:101843, 2021.
- [171] Hosny, K. M. and Kassem, M. A. Refined residual deep convolutional network for skin lesion classification. *Journal of Digital Imaging*, 35(2):258–280, 2022.
- [172] Golnoori, F., Boroujeni, F. Z., and Monadjemi, A. Metaheuristic algorithm based hyper-parameters optimization for skin lesion classification. *Multimedia Tools and Applications*, pages 1–33, 2023.
- [173] Sharafudeen, M. Detecting skin lesions fusing handcrafted features in image network ensembles. *Multimedia Tools and Applications*, 82(2):3155–3175, 2023.
- [174] Kadirappa, R. and Ko, S.-B. An automated multi-class skin lesion diagnosis by embedding local and global features of dermoscopy images. *Multimedia Tools and Applications*, pages 1–28, 2023.
- [175] Villa-Pulgarin, J. P., Ruales-Torres, A. A., Arias-Garzon, D., Bravo-Ortiz, M. A., Arteaga-Arteaga, H. B., Mora-Rubio, A., Alzate-Grisales, J. A., Mercado-Ruiz, E., Hassaballah, M., Orozco-Arias, S., et al. Optimized convolutional neural network models for skin lesion classification. *Comput. Mater. Contin*, 70(2):2131–2148, 2022.

Bibliography

- [176] Zafar, M., Amin, J., Sharif, M., Anjum, M. A., Mallah, G. A., and Kadry, S. Deeplabv3+-based segmentation and best features selection using slime mould algorithm for multi-class skin lesion classification. *Mathematics*, 11(2):364, 2023.
- [177] Alsahafi, Y. S., Kassem, M. A., and Hosny, K. M. Skin-net: a novel deep residual network for skin lesions classification using multilevel feature extraction and cross-channel correlation with detection of outlier. *Journal of Big Data*, 10(1):105, 2023.

Publications based on thesis work

1. Journal

- **Mahanta, D.**, Hazarika, D., and Nath, V. K. Local Bit-Plane Domain 3D Oriented Arbitrary and Circular Shaped Scanning Patterns for Bio-Medical Image Retrieval. **Journal of Image and Graphics**, 11(2), 2023. (Scopus)
- **Mahanta, D.**, Hazarika, D., and Nath, V. K. Automated Diagnosis of COVID-19 Using Synthetic Chest X-Ray Images from Generative Adversarial Networks and Blend of Inception-v3 and Vgg-19 Features. **SN Computer Science**, 4(5), 558, 2023. (Scopus)
- **Mahanta, D.**, Hazarika, D., and Nath, V. K. Hybrid deep features computed from spatial images and bit plane-based pattern maps for the classification of chest X-ray images **Journal of Radiation Research and Applied Sciences**, 17(3), 101024, 2024. (SCIE)
- **Mahanta, D.**, Hazarika, D., and Nath, V. K. Classification of skin lesions utilizing DarkNet-53, ResNet-50, MobileNet-v2 models and their modified forms with CycleGAN generated synthetic images. **(Manuscript under preparation)**

2. Conference

- **Mahanta, D.**, Hazarika, D., and Nath, V. K. Biomedical Image Retrieval using Muti-Scale Local Bit-plane Arbitrary Shaped Patterns. **National Conference on Communications (NCC)**, (pp. 1-6), 2021. IEEE, IIT Kanpur.