

BAB VI

KESIMPULAN DAN SARAN

A. Kesimpulan

Dari penelitian ini diperoleh beberapa kesimpulan yaitu:

1. Proses pelatihan menggunakan metode CNN yang telah disusun menunjukkan hasil yang baik.
2. Pelatihan yang dilakukan dengan *cross-validation* menunjukkan hasil yang tidak jauh berbeda dari setiap eksperimennya.
3. Hasil pengujian menggunakan *cross-validation* mampu mencapai akurasi 90.14%.

B. Saran

Adapun saran dari penulis untuk penelitian berikutnya adalah:

1. Penambahan dataset yang lebih banyak akan menghasilkan hasil yang lebih variatif.
2. Jumlah dataset setiap kelas akan membuat akurasi pelatihan lebih stabil.

Daftar Pustaka

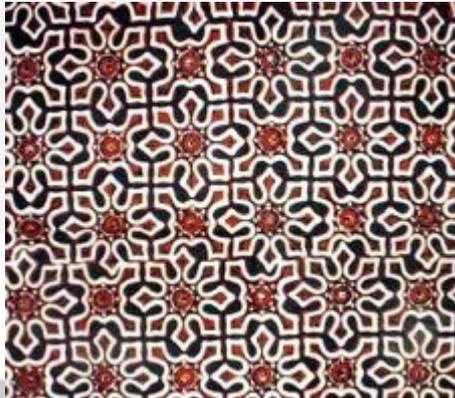
- Alom, M. Z., Sidike, P., Taha, T. M., & Asari, V. K. (2017). Handwritten Bangla Digit Recognition Using Deep Learning. *International Journal of Advanced Research in Computer Engineering & Technology (IJARCET)*, 6(7), 990–997. Retrieved from <http://arxiv.org/abs/1705.02680>
- Cao, X., Wang, P., Meng, C., Bai, X., Gong, G., Liu, M., & Qi, J. (2018). Region based CNN for foreign object debris detection on airfield pavement. *Sensors (Switzerland)*, 18(3), 1–14. <https://doi.org/10.3390/s18030737>
- Cho, S. W., Baek, N. R., Kim, M. C., Koo, J. H., Kim, J. H., & Park, K. R. (2018). Face detection in nighttime images using visible-light camera sensors with two-step faster region-based convolutional neural network. *Sensors (Switzerland)*, 18(9). <https://doi.org/10.3390/s18092995>
- Cho, S. W., Baek, N. R., Kim, M. C., Koo, J. H., Kim, J. H., & Park, K. R. (2018). Face detection in nighttime images using visible-light camera sensors with two-step faster region-based convolutional neural network. *Sensors (Switzerland)*, 18(9). <https://doi.org/10.3390/s18092995>
- Christopher Bishop. (2006). *Pattern Recognition and Machine Learning*. Springer - Verlag New York.
- Ciocca, G., Napoletano, P., & Schettini, R. (2018). CNN-based features for retrieval and classification of food images. *Computer Vision and Image Understanding*, 176–177(February), 70–77. <https://doi.org/10.1016/j.cviu.2018.09.001>
- Deng, L., & Yu, D. (2014). *Deep Learning: Methods and Applications*. now Publishers Inc. <https://doi.org/http://dx.doi.org/10.1561/2000000039>
- Farhadi, F., & Lodi Vahid, A. N. (2017). Learning activation functions in deep neural networks. *Département de Mathématiques et de Génie Industriel*, 151. Retrieved from <https://publications.polymtl.ca/2945/>
- Fukushima, K. (1980). Neocognitron: A self-organizing neural network model for a mechanism of pattern recognition unaffected by shift in position. *Biological Cybernetics*, 36, 193–202.
- Hopfield, J. J. (1982). Neural networks and physical systems with emergent collective computational abilities. *Proceedings of the National Academy of Sciences of the United States of America*. <https://doi.org/https://doi.org/10.1073/pnas.79.8.2554>
- Kemdikbud, Kamus Besar Bahasa Indonesia. <http://kbbi.web.id/batik>, diakses 25 November 2015
- Kestur, R., Meduri, A., & Narasipura, O. (2019). MangoNet: A deep semantic segmentation architecture for a method to detect and count mangoes in an open orchard. *Engineering Applications of Artificial Intelligence*, 77(September 2018), 59–69. <https://doi.org/10.1016/j.engappai.2018.09.011>

- LeCun, Y., Kavukcuoglu, K., & Farabet, C. (2010). Convolutional networks and applications in vision. Proceedings of 2010 IEEE International Symposium on Circuits and Systems. <https://doi.org/10.1109/ISCAS.2010.5537907>
- LISA Lab. 2015. Deep Learning. Diperoleh pada 6 Juni 2019 dari <http://deeplearning.net/>)
- Rahnemoonfar, M., & Sheppard, C. (2017). Deep count: Fruit counting based on deep simulated learning. *Sensors (Switzerland)*, 17(4), 1–12. <https://doi.org/10.3390/s17040905>
- Refaeilzadeh, P., Tang, L., & Liu, H. (2009). Cross-Validation. Springer, Boston, MA. <https://doi.org/10.1007/978-0-387-39940-9>
- Russell, S. J., & Norvig, P. (2009). *Artificial Intelligence: A Modern Approach (3rd Edition)*. Pearson.
- Serre, T., Wolf, L., Bileschi, S., and Riesenhuber, M. (2007). Robust object recognition with cortex-like mechanisms. *IEEE Trans. Pattern Anal. Mach. Intell.*, 29(3), 411–426. Member-Poggio, Tomaso.
- Shapiro, L. G., & Stockman, G. C. (2001). *Computer Vision*. Pearson.
- UNESCO. Fourth Session of the Intergovernmental Committee (4.COM). <http://www.unesco.org/culture/ich/en/RL/indonesian-batik-00170>, diakses 25 November 2015
- Wikipedia. https://id.wikipedia.org/wiki/Batik_Parang
- Witten, I., Frank, E., & Hall, M. (2011). *Data Mining: Practical Machine Learning Tools and Techniques 3rd Edition*. Elsevier.
- Y. LeCun, L. Bottou, Y. Bengio, P. Haffner, "Gradient-Based Learning Applied to Document Recognition", Proceedings of the IEEE, vol. 86, no. 11, pp. 2278-2324, 1998.
- I Made Artha Ahastya, Arief Setyanto, "Classification of Indonesian Batik Using Deep Learning Techniques and Data Augmentation", DOI: 10.1109/ICITISEE.2018.8720990
- Kevin Pudi Danukusumo, Pranowo, Martinus Maslim, "Indonesia ancient temple classification using convolutional neural network", DOI: 10.1109/ICCEREC.2017.8226709



Dataset Pelatihan dan Pengujian

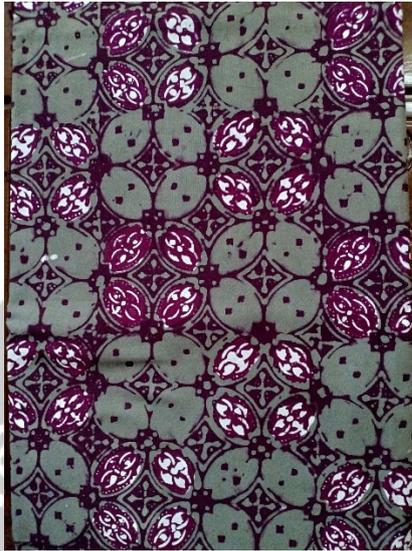
1. Motif Batik Ceplok

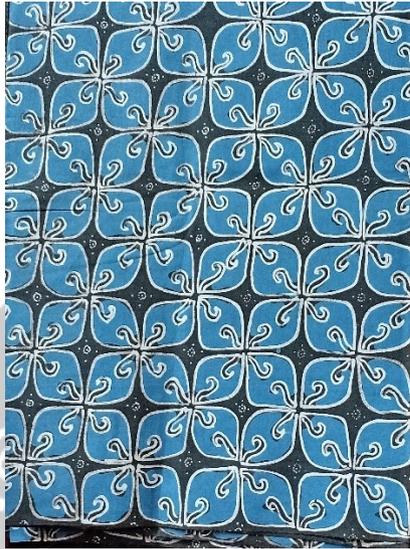




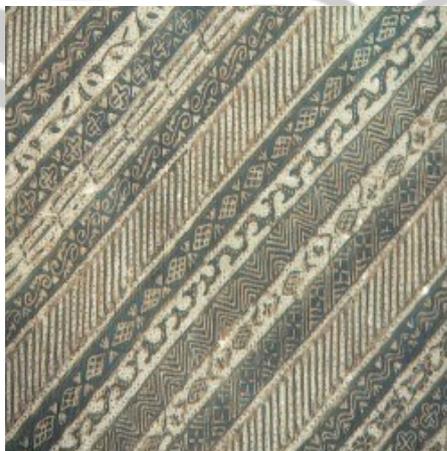
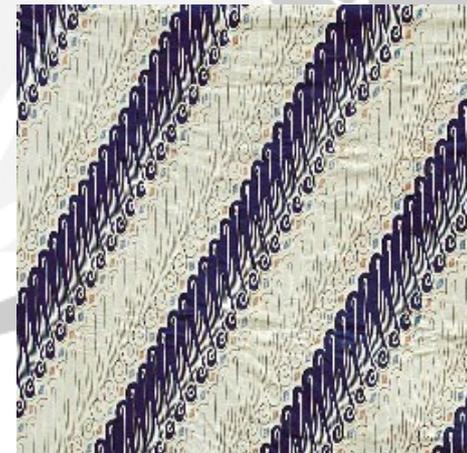
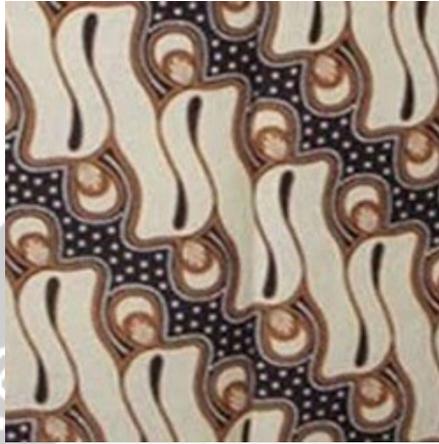
2. Motif Batik Kawung

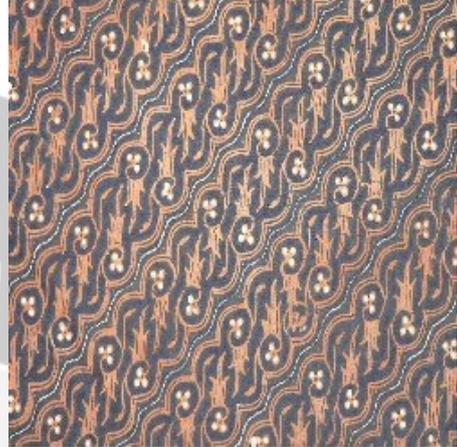
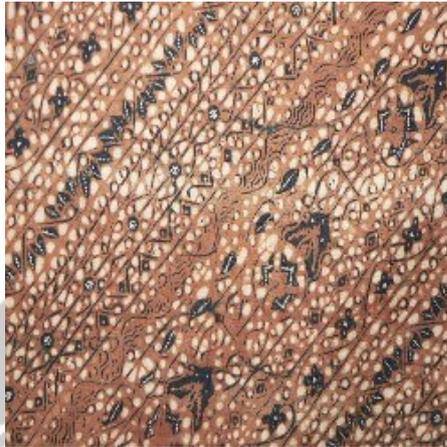




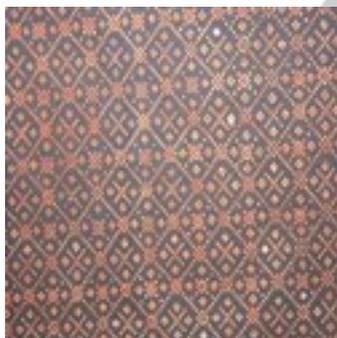
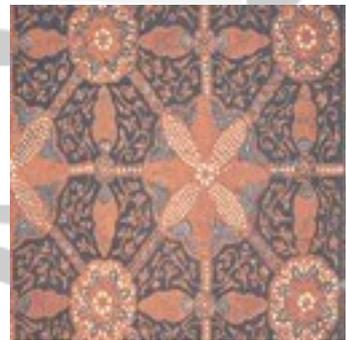
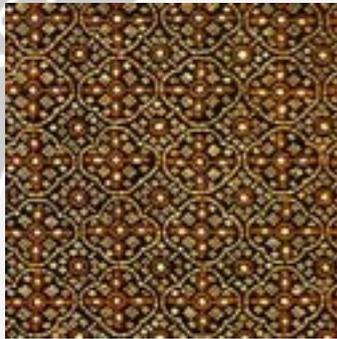


3. Motif Batik Lereng





4. Motif Batik Nitik



5. Motif Batik Parang Rusak





