

Daftar Pustaka

- [1] BRAUN, A. C., WEIDNER, U., AND HINZ, S. Support vector machines, import vector machines and relevance vector machines for hyperspectral classification—a comparison. In *2011 3rd Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing (WHISPERS)* (2011), IEEE, pp. 1–4.
- [2] DAHIMA, S., AND SHITLANI, D. J. A survey on various data mining technique in intrusion detection system. *IOSR Journal of Computer Engineering (IOSR-JCE)* 19 (2017), 2278–8727.
- [3] DEWA, Z., AND MAGLARAS, L. A. Data mining and intrusion detection systems. *vol 7* (2016), 62–71.
- [4] DOUGAL. relation between support vectors and accuracy in case of rbf kernel. In - (2012), <https://stackoverflow.com/questions/10389944/relation-between-support-vectors-and-accuracy-in-case-of-rbf-kernel>, pp. –.
- [5] ESMAILY, J., MORADINEZHAD, R., AND GHASEMI, J. Intrusion detection system based on multi-layer perceptron neural networks and decision tree. In *Information and Knowledge Technology (IKT), 2015 7th Conference on* (2015), IEEE, pp. 1–5.
- [6] HEBBA, F. E., DARWISH, A., HASSANIEN, A. E., AND ABRAHAM, A. Principle components analysis and support vector machine based intrusion detection system. In *Intelligent Systems Design and Applications (ISDA), 2010 10th International Conference on* (2010), IEEE, pp. 363–367.
- [7] JAVIERFDR. Intuition for the regularization parameter in svm. In *Slides from Prof. Oriol Pujol. Universitat de Barcelona* (2015), <https://datascience.stackexchange.com/questions/4943/intuition-for-the-regularization-parameter-in-svm>, pp. –.
- [8] MALHOTRA, S., BALI, V., AND PALIWAL, K. Genetic programming and k-nearest neighbour classifier based intrusion detection model. In *Cloud Computing, Data Science & Engineering-Confluence, 2017 7th International Conference on* (2017), IEEE, pp. 42–46.

- [9] MUKHERJEE, S., AND SHARMA, N. Intrusion detection using naive bayes classifier with feature reduction. *Procedia Technology* 4 (2012), 119–128.
- [10] NURSALIM, S., AND HIMAWAN, H. Klasifikasi bidang kerja lulusan menggunakan algoritma k-nearest neighbor. *Jurnal Teknologi Informasi* 10, 1 (2014), 31–43.
- [11] PAL, D., AND PARASHAR, A. Improved genetic algorithm for intrusion detection system. In *Computational Intelligence and Communication Networks (CICN), 2014 International Conference on* (2014), IEEE, pp. 835–839.
- [12] RELIGIA, Y. Feature extraction untuk klasifikasi pengenalan wajah menggunakan support vector machine dan k-nearest neighbor.
- [13] ROSCHER, R., WASKE, B., AND FORSTNER, W. Incremental import vector machines for classifying hyperspectral data. *IEEE Transactions on Geoscience and Remote Sensing* 50, 9 (2012), 3463–3473.
- [14] SATRIA MANDALA, SOFY FITRIANI, M. A. M. S. M. Semi – supervised method for intrusion detection system.
- [15] SAWANT, T. S., AND ITKAR, S. A. A survey and comparative study of different data mining techniques for implementation of intrusion detection system. *International Journal of Current Engineering and Technology* 4 (2014), 1288–1291.
- [16] SHRIVAS, A. K., AND DEWANGAN, A. K. An ensemble model for classification of attacks with feature selection based on kdd99 and nsl-kdd data set. *International Journal of Computer Applications* 99, 15 (2014).
- [17] SUGIANTORO, B., AND ISTIYANTO, J. E. Analisa sistem keamanan intrusion detection system (ids), firewall system, database system dan monitoring system menggunakan agent bergerak. In *Seminar Nasional Informatika (SEMNASIF)* (2015), vol. 1.
- [18] UBADILLAH, S., SALLEHUDDIN, R., AND ALI, N. Cancer detection using artificial neural network and support vector machine: A comparative study. *Jurnal Teknologi* 65, 1 (2013), 73–81.
- [19] VINUTHA H.P, D. B. A survey - comparative study on intrusion detection system. *International Journal of Advanced Research in Computer and Communication Engineering* 4, 7 (2015).

- [20] ZHAO, J.-Z., AND HUANG, H.-K. An intrusion detection system based on data mining and immune principles. In *Machine Learning and Cybernetics, 2002. Proceedings. 2002 International Conference on* (2002), vol. 1, IEEE, pp. 524–528.
- [21] ZHU, J., AND HASTIE, T. Kernel logistic regression and the import vector machine. *Journal of Computational and Graphical Statistics* 14, 1 (2005), 185–205.

Lampiran

Fitur-fitur pada NSL-KDD

1. Duration	12. Logged in	22. is_guest_login	32. dst_host_count
2. Protocol type	13. Num compromised	23. Count	33. dst_host_srv_count
3. Service	14. root shell	24. srv_count	34. dst_host_same_srv_rate
4. Flag	15. Su_attempted	25. serror_rate	35. dst_host_diff_srv_rate
5. Src_bytes	16. num_root	26. srv_serror_rate	36. dst_host_same_src_port_rate
6. Dst_bytes	17. num_file_creations	27. rerror_rate	37. dst_host_srv_diff_host_rate
7. Land	18. num_shells	28. Srv_rerror_rate	38. dst_host_error_rate
8. Wrong fragment	19. num_access_files	29. Same_srv_rate	39. dst_host_srv_serror_rate
9. Urgent	20. num_outbound_cmds	30. diff_srv_rate	40. dst_host_error_rate
10. Hot	21. is_host_login	31. srv_diff_host_rate	41. dst_host_srv_error_rate

Gambar 5.1: Fitur-fitur pada NSL-KDD