

Bibliography

- [1] Raghavendra Chalapathy and Sanjay Chawla. “Deep learning for anomaly detection: A survey”. In: *arXiv preprint arXiv:1901.03407* (2019).
- [2] Hanan Hindy et al. “A taxonomy and survey of intrusion detection system design techniques, network threats and datasets”. In: *arXiv preprint arXiv:1806.03517* (2018).
- [3] Min Du et al. “Deeplog: Anomaly detection and diagnosis from system logs through deep learning”. In: *Proceedings of the 2017 ACM SIGSAC Conference on Computer and Communications Security*. 2017, pp. 1285–1298.
- [4] Mohiuddin Ahmed, Abdun Naser Mahmood, and Jiankun Hu. “A survey of network anomaly detection techniques”. In: *Journal of Network and Computer Applications* 60 (2016), pp. 19–31.
- [5] Donghwoon Kwon et al. “A survey of deep learning-based network anomaly detection”. In: *Cluster Computing* 22.1 (2019), pp. 949–961.
- [6] Robert DiPietro and Gregory D. Hager. “Chapter 21 - Deep learning: RNNs and LSTM”. In: *Handbook of Medical Image Computing and Computer Assisted Intervention*. Ed. by S. Kevin Zhou, Daniel Rueckert, and Gabor Fichtinger. Academic Press, 2020, pp. 503–519. ISBN: 978-0-12-816176-0. doi: <https://doi.org/10.1016/B978-0-12-816176-0.00026-0>. URL: <http://www.sciencedirect.com/science/article/pii/B9780128161760000260>.
- [7] Fei Tony Liu, Kai Ming Ting, and Zhi-Hua Zhou. “Isolation forest”. In: *2008 Eighth IEEE International Conference on Data Mining*. IEEE. 2008, pp. 413–422.
- [8] Aristidis Likas, Nikos Vlassis, and Jakob J Verbeek. “The global k-means clustering algorithm”. In: *Pattern recognition* 36.2 (2003), pp. 451–461.
- [9] Ian Goodfellow, Yoshua Bengio, and Aaron Courville. *Deep Learning*. <http://www.deeplearningbook.org>. MIT Press, 2016.

- [10] Jerone TA Andrews, Edward J Morton, and Lewis D Griffin. “Detecting anomalous data using auto-encoders”. In: *International Journal of Machine Learning and Computing* 6.1 (2016), p. 21.
- [11] Nicolas Goix. “Machine learning and extremes for anomaly detection”. PhD thesis. Paris, ENST, 2016.
- [12] Gunnar Ratsch et al. “Constructing boosting algorithms from SVMs: An application to one-class classification”. In: *IEEE Transactions on Pattern Analysis and Machine Intelligence* 24.9 (2002), pp. 1184–1199.
- [13] S Rasoul Safavian and David Landgrebe. “A survey of decision tree classifier methodology”. In: *IEEE transactions on systems, man, and cybernetics* 21.3 (1991), pp. 660–674.
- [14] Zhiguo Ding and Minrui Fei. “An anomaly detection approach based on isolation forest algorithm for streaming data using sliding window”. In: *IFAC Proceedings Volumes* 46.20 (2013), pp. 12–17.
- [15] Zhangyu Cheng, Chengming Zou, and Jianwei Dong. “Outlier detection using isolation forest and local outlier factor”. In: *Proceedings of the conference on research in adaptive and convergent systems*. 2019, pp. 161–168.
- [16] Sara Nasser, Rawan Alkhalidi, and Gregory Vert. “A modified fuzzy k-means clustering using expectation maximization”. In: *2006 IEEE International Conference on Fuzzy Systems*. IEEE. 2006, pp. 231–235.
- [17] Yong Gyu Jung, Min Soo Kang, and Jun Heo. “Clustering performance comparison using K-means and expectation maximization algorithms”. In: *Biotechnology & Biotechnological Equipment* 28.sup1 (2014), S44–S48.
- [18] KA Abdul Nazeer and MP Sebastian. “Improving the Accuracy and Efficiency of the k-means Clustering Algorithm”. In: *Proceedings of the world congress on engineering*. Vol. 1. Association of Engineers London. 2009, pp. 1–3.
- [19] Christopher M Bishop. *Pattern recognition and machine learning*. springer, 2006.
- [20] Usama Fayyad, Paul S Bradley, and Cory Reina. *Scalable system for expectation maximization clustering of large databases*. US Patent 6,263,337. July 2001.

- [21] Christopher Whelan, Greg Harrell, and Jin Wang. “Understanding the k-medians problem”. In: *Proceedings of the International Conference on Scientific Computing (CSC)*. The Steering Committee of The World Congress in Computer Science, Computer ... 2015, p. 219.
- [22] William S Noble. “What is a support vector machine?” In: *Nature biotechnology* 24.12 (2006), pp. 1565–1567.
- [23] Markus M Breunig et al. “LOF: identifying density-based local outliers”. In: *Proceedings of the 2000 ACM SIGMOD international conference on Management of data*. 2000, pp. 93–104.
- [24] Norm A Campbell. “Robust procedures in multivariate analysis I: Robust covariance estimation”. In: *Journal of the Royal Statistical Society: Series C (Applied Statistics)* 29.3 (1980), pp. 231–237.
- [25] Jitendra Kumar, Rimsha Goomer, and Ashutosh Kumar Singh. “Long Short Term Memory Recurrent Neural Network (LSTM-RNN) Based Workload Forecasting Model For Cloud Datacenters”. In: *Procedia Computer Science* 125 (2018). The 6th International Conference on Smart Computing and Communications, pp. 676–682. issn: 1877-0509. DOI: <https://doi.org/10.1016/j.procs.2017.12.087>. URL: <http://www.sciencedirect.com/science/article/pii/S1877050917328557>.
- [26] Graham Williams et al. “A comparative study of RNN for outlier detection in data mining”. In: *2002 IEEE International Conference on Data Mining, 2002. Proceedings*. IEEE. 2002, pp. 709–712.
- [27] Stephen Odaibo. “Tutorial: Deriving the standard variational autoencoder (vae) loss function”. In: *arXiv preprint arXiv:1907.08956* (2019).
- [28] Carl Doersch. *Tutorial on Variational Autoencoders*. 2021. arXiv: 1606.05908 [stat.ML].
- [29] Benyamin Ghojogh et al. “Factor Analysis, Probabilistic Principal Component Analysis, Variational Inference, and Variational Autoencoder: Tutorial and Survey”. In: *arXiv preprint arXiv:2101.00734* (2021).
- [30] Andrea Asperti and Matteo Trentin. “Balancing reconstruction error and Kullback-Leibler divergence in Variational Autoencoders”. In: *IEEE Access* 8 (2020), pp. 199440–199448.
- [31] Shilin He et al. “Experience report: System log analysis for anomaly detection”. In: *2016 IEEE 27th International Symposium on Software Reliability Engineering (ISSRE)*. IEEE. 2016, pp. 207–218.

- [32] F Pedregosa et al. ““Scikit-learn: Machine learning in Python.” *Journal of machine learning research* 12 (Oct), 2825–2830”. In: *URL: <http://jmlr.org/papers/v12/pedregosa11a.html>* (2011).
- [33] Loic Bontemps, James McDermott, Nhien-An Le-Khac, et al. “Collective anomaly detection based on long short-term memory recurrent neural networks”. In: *International Conference on Future Data and Security Engineering*. Springer. 2016, pp. 141–152.
- [34] Jinwon An and Sungzoon Cho. “Variational autoencoder based anomaly detection using reconstruction probability”. In: *Special Lecture on IE* 2.1 (2015), pp. 1–18.
- [35] Sinno Jialin Pan and Qiang Yang. “A survey on transfer learning”. In: *IEEE Transactions on knowledge and data engineering* 22.10 (2009), pp. 1345–1359.
- [36] Fuzhen Zhuang et al. “Supervised representation learning: Transfer learning with deep autoencoders”. In: *Twenty-Fourth International Joint Conference on Artificial Intelligence*. 2015.
- [37] Clinton Gormley and Zachary Tong. *Elasticsearch: The Definitive Guide*. 1st. O’Reilly Media, Inc., 2015. ISBN: 1449358543.
- [38] AMIT PURUSHOTTAM Pimpalkar and R Jeberson Retna Raj. “Influence of Pre-Processing Strategies on the Performance of ML Classifiers Exploiting TF-IDF and BOW Features”. In: *ADCAIJ: Advances in Distributed Computing and Artificial Intelligence Journal* 9.2 (2020), pp. 49–68.
- [39] Minmin Chen, Kilian Q Weinberger, Fei Sha, et al. “An alternative text representation to tf-idf and bag-of-words”. In: *arXiv preprint arXiv:1301.6770* (2013).
- [40] Lizhong Xiao, Guangzhong Wang, and Yang Zuo. “Research on patent text classification based on Word2Vec and LSTM”. In: *2018 11th International Symposium on Computational Intelligence and Design (ISCID)*. Vol. 1. IEEE. 2018, pp. 71–74.
- [41] David Guthrie et al. “A closer look at skip-gram modelling.” In: *LREC*. Vol. 6. Citeseer. 2006, pp. 1222–1225.
- [42] Shunjie Han, Cao Qubo, and Han Meng. “Parameter selection in SVM with RBF kernel function”. In: *World Automation Congress 2012*. IEEE. 2012, pp. 1–4.

- [43] Katherine Bennett Ensor and Peter W Glynn. “Stochastic optimization via grid search”. In: *Lectures in Applied Mathematics-American Mathematical Society* 33 (1997), pp. 89–100.
- [44] Jonathan Baarsch and M Emre Celebi. “Investigation of internal validity measures for K-means clustering”. In: *Proceedings of the international multiconference of engineers and computer scientists*. Vol. 1. sn. 2012, pp. 14–16.
- [45] Sarang Narkhede. “Understanding auc-roc curve”. In: *Towards Data Science* 26 (2018), pp. 220–227.
- [46] HANA ŘEZANKOVÁ. “Different approaches to the silhouette coefficient calculation in cluster evaluation”. In: *21st International Scientific Conference AMSE Applications of Mathematics and Statistics in Economics 2018*. 2018, pp. 1–10.
- [47] David L Davies and Donald W Bouldin. “A cluster separation measure”. In: *IEEE transactions on pattern analysis and machine intelligence* 2 (1979), pp. 224–227.
- [48] Hannu Oja, Seija Sirkiä, and Jan Eriksson. “Scatter matrices and independent component analysis”. In: *Austrian Journal of Statistics* 35.2&3 (2006), pp. 175–189.
- [49] Yordan P Raykov et al. “What to do when K-means clustering fails: a simple yet principled alternative algorithm”. In: *PloS one* 11.9 (2016), e0162259.
- [50] Nathalie Japkowicz and Shaju Stephen. “The class imbalance problem: A systematic study”. In: *Intelligent data analysis* 6.5 (2002), pp. 429–449.
- [51] Haowen Xu et al. “Unsupervised anomaly detection via variational auto-encoder for seasonal kpis in web applications”. In: *Proceedings of the 2018 World Wide Web Conference*. 2018, pp. 187–196.