UNIVERSITAS
GADJAH MADA
PENANGANAN DATA TIDAK SEIMBANG MENGGUNAKAN SMOTE PADA KASUS KLASIFIKASI TUBERKULOSIS BERBASIS CITRA CHEST X-RAY
Muhammad Fadhlullah Kh.TQ, Wahyono, S.Kom., Ph.D.
Universitas Gadjah Mada, 2023 | Diunduh dari http://etd.repository.ugm.ac.id/

DAFTAR PUSTAKA

Aftab, K., Fatima, H. S., Aziz, N., Baig, E., Khurram, M., Mubarak, F., & Enam, S. A. (2021). Machine Learning and Sampling Techniques to Enhance Radiological Diagnosis of Cerebral Tuberculosis. *2021 International Conference on Engineering and Emerging Technologies (ICEET)*, *October*, 1–5. https://doi.org/10.1109/ICEET53442.2021.9659603

Ali, A., Shamsuddin, S. M., & Ralescu, A. L. (2015). Classification with class imbalance problem: A review. *International Journal of Advances in Soft Computing and Its Applications*, *7*(3), 176–204.

Bloom, B. R., Atun, R., Cohen, T., Dye, C., Fraser, H., Gomez, G. B., Knight, G., Murray, M., Nardell, E., Rubin, E., Salomon, J., Vassall, A., Volchenkov, G., White, R., Wilson, D., & Yadav, P. (2017). Tuberculosis. In K. K. Holmes, S. Bertozzi, B. R. Bloom, & P. Jha (Eds.), *Disease Control Priorities, Third Edition (Volume 6): Major Infectious Diseases* (3rd ed., pp. 233–313). The World Bank. https://doi.org/10.1596/978-1-4648-0524-0_ch11

Breiman, L. (2001). Random Forests. *Machine Learning*, *45*, 5–32. https://doi.org/10.1023/A:1010933404324

Chawla, N. V., Bowyer, K. W., Hall, L. O., & Kegelmeyer, W. P. (2002). SMOTE: Synthetic Minority Over-sampling Technique. *Journal of Artificial Intelligence Research*, *16*(February), 321–357. https://doi.org/10.1613/jair.953

Chen, Q., Fu, Y., Song, W., Cheng, K., Lu, Z., Zhang, C., & Li, L. (2019). An Efficient Streaming Accelerator for Low Bit-Width Convolutional Neural Networks. *Electronics*, *8*(4), 371. https://doi.org/10.3390/electronics8040371

Chen, Y., Wang, X., Jung, Y., Abedi, V., Zand, R., Bikak, M., & Adibuzzaman, M. (2018). Classification of short single-lead electrocardiograms (ECGs) for atrial fibrillation detection using piecewise linear spline and XGBoost. *Physiological Measurement*, *39*(10), 104006. https://doi.org/10.1088/1361-6579/aadf0f

Choi, D. K. (2019). Data-Driven Materials Modeling with XGBoost Algorithm and Statistical Inference Analysis for Prediction of Fatigue Strength of Steels. *International Journal of Precision Engineering and Manufacturing*, *20*(1), 129–138. https://doi.org/10.1007/s12541-019-00048-6

Clarke, B., Fokoue, E., & Zhang, H. H. (2009). *Principles and Theory for Data Mining and Machine Learning*. Springer Science & Business Media.

Dablain, D., Krawczyk, B., & Chawla, N. V. (2023). DeepSMOTE: Fusing Deep Learning and SMOTE for Imbalanced Data. *IEEE Transactions on Neural Networks and Learning Systems*, *34*(9), 6390–6404. https://doi.org/10.1109/TNNLS.2021.3136503

UNIVERSITAS
GADJAH MADA
PENANGANAN DATA TIDAK SEIMBANG MENGGUNAKAN SMOTE PADA KASUS KLASIFIKASI TUBERKULOSIS BERBASIS CITRA CHEST X-RAY
Muhammad Fadhlullah Kh.TQ, Wahyono, S.Kom., Ph.D.
Universitas Gadjah Mada, 2023 | Diunduh dari http://etd.repository.ugm.ac.id/

EL Mazgualdi, C., Masrour, T., El Hassani, I., & Khdoudi, A. (2021). Machine learning for KPIs prediction: a case study of the overall equipment effectiveness within the automotive industry. *Soft Computing*, *25*(4), 2891–2909. https://doi.org/10.1007/s00500-020-05348-y

Erlin, E., Desnelita, Y., Nasution, N., Suryati, L., & Zoromi, F. (2022). Dampak SMOTE terhadap Kinerja Random Forest Classifier berdasarkan Data Tidak seimbang. *MATRIK : Jurnal Manajemen, Teknik Informatika Dan Rekayasa Komputer*, *21*(3), 677–690. https://doi.org/10.30812/matrik.v21i3.1726

G, S. V, Ponraj, N., & L, D. P. (2021). Study on Public Chest X-ray Data sets for Lung Disease Classification. *2021 3rd International Conference on Signal Processing and Communication (ICPSC)*, *May*, 54–58. https://doi.org/10.1109/ICSPC51351.2021.9451726

Guo, H., Nguyen, H., Vu, D. A., & Bui, X. N. (2021). Forecasting mining capital cost for open-pit mining projects based on artificial neural network approach. *Resources Policy*, *74*(August). https://doi.org/10.1016/j.resourpol.2019.101474

Guo, R., Zhao, Z., Wang, T., Liu, G., Zhao, J., & Gao, D. (2020). Degradation State Recognition of Piston Pump Based on ICEEMDAN and XGBoost. *Applied Sciences*, *10*(18), 6593. https://doi.org/10.3390/app10186593

Haibo He, & Garcia, E. A. (2009). Learning from Imbalanced Data. *IEEE Transactions on Knowledge and Data Engineering*, *21*(9), 1263–1284. https://doi.org/10.1109/TKDE.2008.239

Han, H., Wang, W., & Mao, B. (2005). Borderline-SMOTE : A New Over-Sampling Method in. *International Conference on Intelligent Computing*, *1*, 878–887.

Hanif, I. (2020). Implementing Extreme Gradient Boosting (XGBoost) Classifier to Improve Customer Churn Prediction. *Proceedings of the Proceedings of the 1st International Conference on Statistics and Analytics, ICSA 2019, 2-3 August 2019, Bogor, Indonesia*. https://doi.org/10.4108/eai.2-8-2019.2290338

Hooda, R., Sofat, S., Kaur, S., Mittal, A., & Meriaudeau, F. (2017). Deep-learning: A potential method for tuberculosis detection using chest radiography. *2017 IEEE International Conference on Signal and Image Processing Applications (ICSIPA)*, 497–502. https://doi.org/10.1109/ICSIPA.2017.8120663

Karimi, Z. (2021). *Confusion Matrix*. *October*, 1–4. https://www.researchgate.net/publication/355096788_Confusion_Matrix

Kora, P., Ooi, C. P., Faust, O., Raghavendra, U., Gudigar, A., Chan, W. Y., Meenakshi, K., Swaraja, K., Plawiak, P., & Rajendra Acharya, U. (2022). Transfer learning techniques for medical image analysis: A review. *Biocybernetics and Biomedical Engineering*, *42*(1), 79–107.

UNIVERSITAS
GADJAH MADA
PENANGANAN DATA TIDAK SEIMBANG MENGGUNAKAN SMOTE PADA KASUS KLASIFIKASI TUBERKULOSIS BERBASIS CITRA CHEST X-RAY
Muhammad Fadhlullah Kh.TQ, Wahyono, S.Kom., Ph.D.
Universitas Gadjah Mada, 2023 | Diunduh dari http://etd.repository.ugm.ac.id/

https://doi.org/10.1016/j.bbe.2021.11.004

Krüger, F. (2018). Activity, Context, and Plan Recognition with Computational Causal Behaviour Models. In *ResearchGate* (Issue December). https://www.researchgate.net/figure/Confusion-matrix-for-multi-class-classification-The-confusion-matrix-of-a_fig7_314116591

Kumar, S., & Kumar, H. (2023). Classification of COVID-19 X-ray images using transfer learning with visual geometrical groups and novel sequential convolutional neural networks. *MethodsX*, *11*, 102295. https://doi.org/10.1016/j.mex.2023.102295

Kurniawati, Y. E. (2019). Class Imbalanced Learning Menggunakan Algoritma Synthetic Minority Over-sampling Technique – Nominal (SMOTE-N) pada Dataset Tuberculosis Anak. *Jurnal Buana Informatika*, *10*(2), 134. https://doi.org/10.24002/jbi.v10i2.2441

Laeli, A. R., Rustam, Z., & Pandelaki, J. (2021). Tuberculosis Detection based on Chest X-Rays using Ensemble Method with CNN Feature Extraction. *2021 International Conference on Decision Aid Sciences and Application (DASA)*, 682–686. https://doi.org/10.1109/DASA53625.2021.9682237

Li, S., & Zhang, X. (2020). Research on orthopedic auxiliary classification and prediction model based on XGBoost algorithm. *Neural Computing and Applications*, *32*(7), 1971–1979. https://doi.org/10.1007/s00521-019-04378-4

Ling, C. X., & Sheng, V. S. (2008). Cost-Sensitive Learning and the Class Imbalance Problem. *Encyclopedia of Machine Learning*, *January 2010*, 231–235. http://www.springer.com/computer/ai/book/978-0-387-30768-8%5Cnhttp://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.164.4418&rep=rep1&type=pdf

Liu, Y., Wu, Y.-H., Ban, Y., Wang, H., & Cheng, M.-M. (2020). *Rethinking Computer-aided Tuberculosis Diagnosis*. http://mmcheng.net/tb/

Lopes, U. K., & Valiati, J. F. (2017). Pre-trained convolutional neural networks as feature extractors for tuberculosis detection. *Computers in Biology and Medicine*, *89*(February), 135–143. https://doi.org/10.1016/j.compbiomed.2017.08.001

Ma, H., Huang, W., Jing, Y., Yang, C., Han, L., Dong, Y., Ye, H., Shi, Y., Zheng, Q., Liu, L., & Ruan, C. (2019). Integrating Growth and Environmental Parameters to Discriminate Powdery Mildew and Aphid of Winter Wheat Using Bi-Temporal Landsat-8 Imagery. *Remote Sensing*, *11*(7), 846. https://doi.org/10.3390/rs11070846

Misra, S., & Li, H. (2020). Noninvasive fracture characterization based on the classification of sonic wave travel times. In *Machine Learning for Subsurface Characterization* (pp. 243–287). Elsevier. https://doi.org/10.1016/B978-0-12-

UNIVERSITAS
GADJAH MADA
PENANGANAN DATA TIDAK SEIMBANG MENGGUNAKAN SMOTE PADA KASUS KLASIFIKASI TUBERKULOSIS BERBASIS CITRA CHEST X-RAY
Muhammad Fadhlullah Kh.TQ, Wahyono, S.Kom., Ph.D.
Universitas Gadjah Mada, 2023 | Diunduh dari http://etd.repository.ugm.ac.id/

817736-5.00009-0

Nahiduzzaman, M., Goni, M. O. F., Anower, M. S., Islam, M. R., Ahsan, M., Haider, J., Gurusamy, S., Hassan, R., & Islam, M. R. (2021). A Novel Method for Multivariant Pneumonia Classification Based on Hybrid CNN-PCA Based Feature Extraction Using Extreme Learning Machine With CXR Images. *IEEE Access*, *9*, 147512–147526. https://doi.org/10.1109/ACCESS.2021.3123782

Nurdiansyah, V. V., Cholissodin, I., & Adikara, P. P. (2020). Klasifikasi Penyakit Tuberkulosis (TB) menggunakan Metode Extreme Learning Machine (ELM). *Jurnal Pengembangan Teknologi Informasi Dan Ilmu Komputer*, *4*(5), 1387–1393. https://j-ptiik.ub.ac.id/index.php/j-ptiik/article/view/7237

Oltu, B., Guney, S., Dengiz, B., & Agildere, M. (2021). Automated Tuberculosis Detection Using Pre-Trained CNN and SVM. *2021 44th International Conference on Telecommunications and Signal Processing (TSP)*, 92–95. https://doi.org/10.1109/TSP52935.2021.9522644

Organization, W. H. (2011). WHO Report 2011: Global Tuberculosis Control. In *Global Tuberculosis Control 2011*. https://www.who.int/publications/i/item/9789241564380

Organization, W. H. (2020). *Global tuberculosis report 2020: executive summary*. http://apps.who.int/bookorders.

Phung, & Rhee. (2019). A High-Accuracy Model Average Ensemble of Convolutional Neural Networks for Classification of Cloud Image Patches on Small Datasets. *Applied Sciences*, *9*(21), 4500. https://doi.org/10.3390/app9214500

Pratiwi, E. H., & Juniati, D. (2022). Clustering Penyakit Paru-Paru Berdasarkan Rontgen Dada Menggunakan Dimensi Fraktal Box Counting Dan K-Medoids. *J. Ris. & Ap. Mat*, *06*(01), 1–12.

Priyadarshinee, S., & Panda, M. (2022). Improving Prediction of Chronic Heart Failure using SMOTE and Machine Learning. *2022 Second International Conference on Computer Science, Engineering and Applications (ICCSEA)*, 1–6. https://doi.org/10.1109/ICCSEA54677.2022.9936470

Qotrunnada, F. M., & Utomo, P. H. (2022). Metode Convolutional Neural Network untuk Klasifikasi Wajah Bermasker. *Prisma*, *5*, 799–807.

Ramadhan, N. G. (2021). Comparative Analysis of ADASYN-SVM and SMOTE-SVM Methods on the Detection of Type 2 Diabetes Mellitus. *Scientific Journal of Informatics*, *8*(2), 276–282. https://doi.org/10.15294/sji.v8i2.32484

Rismiyati, R., & Luthfiarta, A. (2021). VGG16 Transfer Learning Architecture for Salak Fruit Quality Classification. *Telematika*, *18*(1), 37. https://doi.org/10.31315/telematika.v18i1.4025

UNIVERSITAS
GADJAH MADA
PENANGANAN DATA TIDAK SEIMBANG MENGGUNAKAN SMOTE PADA KASUS KLASIFIKASI TUBERKULOSIS BERBASIS CITRA CHEST X-RAY
Muhammad Fadhlullah Kh.TQ, Wahyono, S.Kom., Ph.D.
Universitas Gadjah Mada, 2023 | Diunduh dari http://etd.repository.ugm.ac.id/

Saha, S., & Ahsan, S. M. M. (2021). Rice Leaf Disease Recognition using Gray-Level Co-Occurrence Matrix and Statistical Features. *2021 5th International Conference on Electrical Information and Communication Technology (EICT)*, *December 2021*, 1–5. https://doi.org/10.1109/EICT54103.2021.9733511

Simonyan, K., & Zisserman, A. (2014). Very Deep Convolutional Networks for Large-Scale Image Recognition. *3rd International Conference on Learning Representations, ICLR 2015 - Conference Track Proceedings*, 1–14. http://arxiv.org/abs/1409.1556

Siringoringo, R. (2018). Klasifikasi Data Tidak Seimbang Menggunakan Algoritma. *Jurnal ISD*, *3*(1), 44–49.

Spelmen, V. S., & Porkodi, R. (2018). A Review on Handling Imbalanced Data. *2018 International Conference on Current Trends towards Converging Technologies (ICCTCT)*, *December*, 1–11. https://doi.org/10.1109/ICCTCT.2018.8551020

Stein, A., MD, Wu, C., Carr, C., Shih, G., Dulkowski, J., Kalpathy, Chen, L., Prevedello, L., Kohli, M., MD, McDonald, M., Peter, Culliton, P., MD, S. H., & Xia, T. (2018). *RSNA Pneumonia Detection Challenge*. Kaggle. https://kaggle.com/competitions/rsna-pneumonia-detection-challenge

Sunata, H. (2020). Komparasi Tujuh Algoritma Identifikasi Fraud ATM Pada PT. Bank Central Asia Tbk. *JATISI (Jurnal Teknik Informatika Dan Sistem Informasi)*, *7*(3), 441–450. https://doi.org/10.35957/jatisi.v7i3.471

Sutoyo, E., & Fadlurrahman, M. A. (2020). Penerapan SMOTE untuk Mengatasi Imbalance Class dalam Klasifikasi Television Advertisement Performance Rating Menggunakan Artificial Neural Network. *Jurnal Edukasi Dan Penelitian Informatika (JEPIN)*, *6*(3), 379. https://doi.org/10.26418/jp.v6i3.42896

Tanuwijaya, E., & Roseanne, A. (2021). Modifikasi Arsitektur VGG16 untuk Klasifikasi Citra Digital Rempah-Rempah Indonesia. *MATRIK : Jurnal Manajemen, Teknik Informatika Dan Rekayasa Komputer*, *21*(1), 189–196. https://doi.org/10.30812/matrik.v21i1.1492

Urooj, S., Suchitra, S., Krishnasamy, L., Sharma, N., & Pathak, N. (2022). Stochastic Learning-Based Artificial Neural Network Model for an Automatic Tuberculosis Detection System Using Chest X-Ray Images. *IEEE Access*, *10*(September), 103632–103643. https://doi.org/10.1109/ACCESS.2022.3208882

Vrbančič, G., Zorman, M., & Podgorelec, V. (2019). Transfer Learning Tuning Utilizing Grey Wolf Optimizer for Identification of Brain Hemorrhage from Head CT Images. *StuCoSReC. Proceedings of the 2019 6th Student Computer Science Research Conference*, *October*, 61–66. https://doi.org/10.26493/978-

UNIVERSITAS
GADJAH MADA
PENANGANAN DATA TIDAK SEIMBANG MENGGUNAKAN SMOTE PADA KASUS KLASIFIKASI TUBERKULOSIS BERBASIS CITRA CHEST X-RAY
Muhammad Fadhlullah Kh.TQ, Wahyono, S.Kom., Ph.D.
Universitas Gadjah Mada, 2023 | Diunduh dari http://etd.repository.ugm.ac.id/

961-7055-82-5.61-66

Xia, W., Ma, C., Liu, J., Liu, S., Chen, F., Yang, Z., & Duan, J. (2019). High-Resolution Remote Sensing Imagery Classification of Imbalanced Data Using Multistage Sampling Method and Deep Neural Networks. *Remote Sensing*, *11*(21), 2523. https://doi.org/10.3390/rs11212523

Xie, S., & Fan, H. (2019). Research on CNN to Feature Extractionin Diseases Prediction. *Proceedings - 2nd International Conference on Computer Network, Electronic and Automation, ICCNEA 2019*, 197–202. https://doi.org/10.1109/ICCNEA.2019.00046

Yulianti, S. E. H., Soesanto, O., & Sukmawaty, Y. (2022). Penerapan Metode Extreme Gradient Boosting (XGBOOST) pada Klasifikasi Nasabah Kartu Kredit. *Journal of Mathematics: Theory and Applications*, *4*(1), 21–26. https://doi.org/10.31605/jomta.v4i1.1792