

DAFTAR PUSTAKA

- Adi, K., Firdausi, K.S., Gernowo, R., Rahardjo, B., Sugiharto, A., Pamungkas, A., Putranto, A.B., 2013, Pengembangan Algoritma Pengolahan Citra untuk Segmentasi dan Identifikasi Bakteri Tuberculosis (TB) pada Citra Dahak Ziehl-Neelsen, Jakarta 7-8 November 2013, 93-101.
- Adler, D., 1993, Genetic Algorithms and Simulated Annealing: A Marriage Proposal, *IEEE*, 1104-1109.
- Bartlett, P.N., Blair, N., Gardner, J.W., 1993, Electronic Nose. Principles, Applications and Outlook; *ASIC: 15e Colloque*, Montpellier, France, pp 478-486, In: Ghasemi-Varnamkhasti M., Mohtasebi, S.S., Siadat, M. and Belasubramanian, S., 2009, Meat Quality Assesment by Electronic Nose (Machine Olfaction Technology), *Sensors*, Vol 9, 6058-6083.
- Batvian, K., 2013, Penggunaan Ekstrak Beberapa Tumbuhan Dalam Pengendalian Mycobacterium Tuberculosis Penyebab Penyakit Tuberculosis Pada Manusia, *Disertasi*, Program Pascasarjana, Universitas Negeri Papua, Papua.
- Boubezoul, A., Paris, S., and Ouladsine, M., 2008, Application of the Cross Entropy Method to the GLVQ Algorithm, *Pattern Recognition*, No 41, 3173-3178.
- Bruins, M., Rahim, Z., Bos, A., van de Sande, W.W.J., Endtz, H.Ph., van Belkum, A., 2012, Diagnostic of Active Tuberculosis by e-nose Analysis Exhaled Air, *Tuberculosis*, Vol 93, 232-238.
- Buditjahjanto, I.G.P.A., Hariadi, M., and Purnomo, M.H., 2009, Fuzzy Clustering Based on Multiobjective Optimization Problem for Decision Support of Non Player Character in Serious Game, *International Journal of Computer Science and Network Security*, Vol 9, No 12, 29-37.
- Chan, A.K., and Liu, S.J., 1998, Wavelet Toolware: Software for Wavelet Training, *Academic Press Limited*, London.
- Chen, Y., Zhou, X., Wu, Y., Tang, Q., 2006, An Approach to Seafloor Classification with GA-Based Neural Network, *XXIII FIG Congress* October 8-13, 2006, 1-15.
- Collins, R.J., 1992, Studies in Artificial Evolution, *Disertasi*, Universitas California, Los Angeles.

- Cui, X. and Huang, T., 2008, A Novel Method of Selection Complex Wavelet for Feature Extraction in Partial Discharge Signal Processing, *Congres on Image and Signal Processing*, 128-131.
- Dahlan, M.S., 2009, Penelitian Diagnostik Dasar-dasar Teoritis dan Aplikasi dengan Program SPSS dan Stata, Salemba Medika, Jakarta.
- Dahlan, M.S., 2010, *Besar Sampel dan Cara Pengambilan Sampel dalam Penelitian Kedokteran dan Kesehatan*, Edisi ke 3, Salemba Medika, Jakarta.
- Dande, P and Samant, P., 2018, Acquattance to Artificial Neural Network and Use of Artificial Intelligence as a Diagnostic Tool for Tuberculosis, *Tuberculosis*, 108, 1-9.
- Dang, N.A, Kuijper, S., Walters, E., Claassens, M., van Soolingen, D., Vivo-Truyols, G., Janssen, H-G., Kolk, A.H.J., 2013, Validation of Biomarkers for Distinguishing Mycobacterium Tuberculosis from Non-Tuberculous Mycobacteria using Gas Chromatography-Mass Spectrometry and Chemometrics, *PLOS ONE*, Volume 8, No 10.
- Dang, N.A., Kolk, A.H.J., Kuijper, S., Janssen, H-G., Vivo-Truyols, G., 2013, The identification of biomarkers differentiating Mycobacterium tuberculosis (MTB) and non-tuberculous mycobacteria (NTM) via thermally assisted hydrolysis and methylation gas chromatography–mass spectrometry and chemometrics (THM-GC-MS), *Metabolomics*, 9, 1274-1285.
- Distante, C., Leo, M., dan Persaud, K.C., 2010, *Wavelet Transform for Electronic Nose Signal Analysis*, 177-200.
- Fend, R., Kolk, A.H.J., Bessant, C., Buijtel, P., Klatser, P.R. and Woodman, A.C., 2006, Prospects for Clinical Application of Electronic-Nose Technology to Early Detection of Mycobacterium tuberculosis in Culture and Sputum, *Journal of Clinical Microbiology*, Vol. 44, No. 6, 2039-2045.
- Ferero, M.G., Sroubek, F., and Cristobal, G., 2004, Identification of Tuberculosis bacteria based on shape and color, *Real-Time Imaging*, No. 10, 251-262.
- Filho, J.L., Treleaven, P.C., Alippi, C., Di Milano, P., 1994, Genetic Algorithm Programming Environments, *IEEE Computation*, July issue, 28-43.
- Fujiki, A., 2001, *Bacteriology Examination to Stop TB*, RIT, Japan.
- Gelley, N., and Jang, R., 2000, Fuzzy Logic Toolbox, *Mathwork Inc.*, USA.

- Gen, M., 1997, Genetic Algorithm and Engineering Design, *John Wiley and Sons*.
- Ghasemi-Varnamkhasti M., Mohtasebi, S.S., Siadat, M. and Belasubramanian, S., 2009, Meat Quality Assesment by Electronic Nose (Machine Olfaction Technology), *Sensors*, vol 9, 6058-6083.
- Gibson, T., Kolk, A., Reither, K., Kuijpers, S., Hallam, V., Chandler, R., Dutta, R., Maboko, L., Jung, J., Klatser, P., 2009, Predictive Detection of Tuberculosis using Electronic Nose Technology, CP1137, *Olfaction and Electronic Nose: Proceedings of the 13th International Symposium*, American Institue of Physics, Feb 2009.
- Goldberg, D.E., 1989, Genetic Algorithms in Search Optimization and Machine Learning, *Addison Wesley*.
- Hardoyono, F., Triyana, K., Iswanto, B.I., 2011, Aplikasi Jaringan Syaraf Tiruan Propagasi Balik pada Sistem Olfaktori Elektronik Larik Sensor Gas untuk Deteksi Jenis Bahan Herbal, *Seminar Nasional Aplikasi Teknologi Informasi (SNATI)*, Yogyakarta, 17-18 Juni 2011, F-74 sampai F-80.
- Hardoyono, F., Triyana, K., Iswanto, B.H., 2015, Rapid Discrimination of Indonesian Herbal Medicines by Using Electronic Nose Base on Array of Commercial Gas Sensors, *Applied Mechanics and Materials*, Vol 771, 209-212.
- Holland, J.H., 1975, *Adaptation in Natural and Artificial System*, The University Michigan Press, Michigan.
- Hong, X. and Hopfinger, A.J., 2004, Molecular modeling and simulation of Mycobacterium tuberculosis cell wall permeability, *American Chemical Society*, Vol. 5, Issue 3, 1066-1077.
- Hong, X. and Hopfinger, A.J., 2004, Construction, molecular modeling and simulation of Mycobacterium tuberculosis cell walls, *American Chemical Society*.
- Hopfield, J.J., 1982, Neural Networks and physical systems with emergent collective computational abilities, *Preceedings of the national academy of Sciences of USA (PNAS)*, No 8, Vol 79, 2554-2558.
- Hung, W.L., Chen, D.H., and Yang, M.S., 2011, Suppressed Fuzzy-Soft Learning Vector Quantization for MRI Segmentation, *Artifical Intelligence in Medicine*, No. 52, 33043.

<http://itb.ac.id>, 02 Mei 2011, diakses 14 Januari 2012.

James, G.M., 2007, Curve Alignment By Moments, *The Annals of applied Statistics*, Vol. 1, No. 2, 480-501.

Jang, J.S.R., Sun, C.T., dan Mizutani, E., 1997, Neuro-Fuzzy and Soft Computing, *Prentice-Hall*, London.

Jatmiko, W., Rochmatullah, Kusumoputro, B., Sekiyama, K., and Fukuda, T., 2009, Fuzzy Learning Vector Quantization Based on Particle Swarm Optimization for Artificial Odor Discrimination System, *WSEAS Transaction on System*, Vol. 8, No. 12, 1239-1252.

Jatmiko, W., Nulad, W.P., Ima, E.M., Setiawan, I.M.A., and Mursanto, P., 2011, Heart Beat Classification Using Wavelet Feature Based on Neural Network, *WSEAS Transaction on System*, Vol. 10, No. 1, 17-26.

Johnson, R.A. and Winchern, D.W., 1998, *Applied Multivariate Statistical Analysis*, *Prentice-Hall International Inc.*, New York. In: Febriyana, 2011, Analisis Klaster K-Means dan K-Median Pada Indikator Kemiskinan, *Skripsi*, UIN Syarif Hidayatullah, Jakarta.

Kaal, E., Kolk, A.H.J., Kuiper, S. and Janssen, H.G., 2009, A fast method for the identification of *Mycobacterium tuberculosis* in sputum and cultures based on thermally assisted hydrolysis and methylation followed by gas chromatography-mass spectrometry, *Journal of Chromatography A*, No 1216, 6319-6325.

Karayannis, Nicolas. B.; Bezdek, James, C. 1997, An Integration Approach to Fuzzy Learning Vector Quantization and Fuzzy c-Means Clustering, *IEEE Transactions on Neural Networks*, vol 5, no 4, In: Kusumadewi, S., dan Hartati, S., 2010, Neuro-Fuzzy Integrasi Sistem Fuzzy dan Jaringan Syaraf, Edisi 2, *Graha Ilmu*, Yogyakarta.

Kemenkes RI, Pedoman Nasional Pengendalian Tuberkulosis, 2014.

Kermani, B.G., Schiffman, S.S. and Nagle, H.T., 1999, Using Neural Networks and Genetic Algorithms to Enhance Performance in an Electronic Nose, *IEEE Transactions on Biomedical Engineering*, No. 4, Vol. 46, 429-439.

- Kirschner, P., Meier, A. and Bottger, E.C., 1993, *Genotype identification and detection of mycobacteria: facing novel and uncluttered pathogens*, In: Persing, D.H., Tenover, F., White, T.J. and Smith, T.F., 1993, *Diagnostic molecular microbiology*, Washington, DC: *American Society for Microbiology*, In: Tortoli, E. and Bartoloni A., 1996, High-performance liquid chromatography and identification of mycobacteria, *Review In Medical Microbiology*, Vol 7, No 4, 207-219.
- Kivihya-Ndugga, L., Van Cleeff, M., Juma, E., Kimwomi, J., Githui, W., Oskam, L., Schuitema, A., van Soolingen, D., Nganga, L., Kibuga, D., Odhiambo, J. and Klatser, P., 2004, Utility of an amplification test based on ligase chain reaction in pulmonary tuberculosis, *Journal of Clinical Microbiology*, No 42, 1012, In: Kaal, E., Kolk, A.H.J., Kuiper, S. and Janssen, H.G., 2009, A fast method for the identification of *Mycobacterium tuberculosis* in sputum and cultures based on thermally assisted hydrolysis and methylation followed by gas chromatography-mass spectrometry, *Journal of Chromatography A*, No 1216, 6319-6325.
- Kolk, A.H.J., Hoelscher, M., Maboko, L., Jung, J., Kuiper, S., Cauchi, M., Bessant, C., van Beers, S., Dutta, R., Gibson, T. and Reither, K., 2010, Electronic-Nose Technology Using Sputum Samples in Diagnosis of Patients with Tuberculosis, *Journal of Clinical Microbiology*, No 11, Vol 48, 4235-4238.
- Kolk, A.H.J., van Berkel, J.J.B.N., Claassens, M.M., Walters, E., Kuijper, S., Dallinga, J.W., van Schooten, F.J., 2012, Breath Analysis as a Potential Diagnostic Tool for Tuberculosis, *International Journal of Tuberculosis and Lung Disease*, Vol 16, No 6, pp. 777-782.
- Kox, L.E.F., 1995, Diagnostic of mycobacterial infection by nucleic acid amplification, *Respiration Medicine*, No 89, 399, In: Kaal, E., Kolk, A.H.J., Kuijper, S. and Janssen, H.G., 2009, A fast method for the identification of *Mycobacterium tuberculosis* in sputum and cultures based on thermally assisted hydrolysis and methylation followed by gas chromatography-mass spectrometry, *Journal of Chromatography A*, No 1216, 6319-6325.
- Kristanto, A., 2004, Jaringan Syaraf Tiruan (Konsep Dasar, Algoritma dan Aplikasi), Edisi 1, *Gava Media*, Yogyakarta.
- Kuhn, M. and Johnson, K., 2013, *Applied Predictive Modeling*, Springer-Verlag Inc., New York.

- Kusuma, I.W. dan Abadi, A.M., 2011, Aplikasi Model *Backpropagation Neural Network* untuk Perkiraan Produksi Tebu pada PT. Perkebunan Nusantara IX, Prosiding Seminar Nasional Matematika dan Pendidikan Matematika FMIPA UNY, Yogyakarta 3 Desember 2011.
- Kusumadewi, S., dan Hartati, S., 2010, Neuro-Fuzzy Integrasi Sistem Fuzzy dan Jaringan Syaraf, Edisi 2, *Graha Ilmu*, Yogyakarta.
- Kusumoputro, B., Jatmiko, W., dan Krisnadhi, A.A., 2002, Sistem Penciuman Elektronik Menggunakan Algoritma FLVQ dan Analisa Matriks Similaritas untuk Mengenal Aroma Campuran, *Prosiding Ilmu Komputer dan Teknologi Informasi*, Vol. 3, No. 1, 246-250.
- Lin, Chin-Teng dan Lee, George, 1996, *Neural Fuzzy Systems*, Prentice-Hall, London.
- Madiafi, M., 2012, A New Fuzzy Learning Scheme for Competitive Neural Networks, *Applied Mathematical Sciences*, Vol. 6, No. 63, 3133-3144.
- Megawati, D., 2013, Prevalensi Manifestasi Oral Tuberculosis Di Balai Pengobatan Penyakit Paru Makassar, *Skripsi*, Fakultas Kedokteran Gigi, Universitas Hasanudin, Makassar.
- Nicoara, S.C., Turner, N.W., Minnikin, D.E., Lee, O.Y.C., O'Sullivan, D.M., McNerney, R., Mutetwa, R., Corbett, L.E., Morgan, G.H., 2015, Development of sample clean-up methods for the analysis of Mycobacterium tuberculosis (MTB) methyl mycocerosate biomarkers in sputum extracts by gas chromatography–mass spectrometry (GC-MS), *Journal of Chromatography B*, 135-142.
- Nisa'a, S.K., 2014, Studi Kasus Ketidakpatuhan Berobat Pasien Tuberculosis di Puskesmas Tamalate, *Disertasi*, Program Pascasarjana, Universitas Negeri Gorontalo, Gorontalo.
- Omisore, M.O., Samuel, O.W., Atajeromavwo, E.J., 2017, A Genetic-Neuro-Fuzzy Inferential Model for Diagnosis of Tuberculosis, *Applied Computing and Informatics*, 13, pp. 27-37.
- O'Sullivan, D.M., Nicoara, S.C., Mutetwa, R., Mungofa, S., Lee, O.Y.C., Minnikin, D.E., Bardwell, M.W., Corbett, E.L., McNerney, R. and Morgan, G.H., 2012, Detection of Mycobacterium tuberculosis in Sputum by Gas Chromatography-Mass Spectrometry of Methyl Mycocerosates Released by Thermochemolysis, *PloS ONE*, Issue 3, Vol 7, 1-8.

- Pal, N.P., Pal, K., Keller, J.M., Bezdek, J.C., 2005, A Possibilistic Fuzzy C-Means Clustering Algorithm, *IEEE Transactions on Fuzzy Systems*, vol 13, no 4.
- Pavlou, A.K., Magan, N., Jones, J.M., Brown, J., Klatser, P., Turner, A.P.F., 2004, Detection of *Mycobacterium tuberculosis* (TB) in vitro and in situ using an electronic nose in combination with a neural network system, *Biosensor and Bioelectronics*, Vol 20, 538-544.
- Pearce, T.C., Schiffman, S.S., Nagle, H.T., Gardner, J.W., 2003, Handbook of Machine Olfaction, *Wiley-VCH Verlag GmbH & Co. KGaA*, Weinheim, Germany.
- Phillips, M., Cataneo, R.K., Condos, R., Erickson, G.A.R., Greenberg, J., Bombardi, V.L., Munawar, M.I., Tietje, O., 2007, Volatile Biomarkers of Pulmonary tuberculosis in the Breath, *Tuberculosis*, 87, pp. 44-52.
- Phillips, M., Basa-Dalay, V., Bothamley, G., Cataneo, R.N., Lam, P.K., Natividad, M.P.R., Schmitt, P., and Wai, J., 2010, Breath Biomarkers of Active Pulmonary Tuberculosis, *Tuberculosis*, Vol 90, pp. 145-154.
- Phillips, M., Basa-Dalay, V., Blais, J., Bothamley, G., Chaturvedi, A., Modi, K.D., Pandya, M., Natividad, M.P.R., Patel, U., Ramraje, N.N., Schmitt, P., and Udawadia, Z.F., 2012, Point-of-care Breath Test for Biomarkers of Active Pulmonary Tuberculosis, *Tuberculosis*, Vol 92, No 2, 314-320.
- Putra, A.E., Brotopuspito, K.S., Istiyanto, J.E., 2008, *Analisis Sinyal Non-Stationer Menggunakan Wavelet dan Metode Dekorlet*.
- Rachna, H.B. and Swamy, M.S.M., 2013, Detection of Tuberculosis Bacilli using Image Processing Techniques, *International Journal of Soft Computing and Engineering*, Vol. 3, No. 4, 2231-2307.
- Ross, T.J., 2005, Fuzzy Logic with Engineering Applications, Edisi 2, *John Wiley & Sons Inc*, UK.
- Sammon J.W., 1969, A Nonlinier Mapping For Data Structure Analysis, *IEEE Trans, Comput*, C-18, 401-409
- Shamshirband, S., Hessem, S., Javidnia, H., Amiribesheli, M., Vahdat, S., Dalibor, P., Gani, A., Kiah, L.M., 2014, Tuberculosis Disease Diagnosis Using Artificial Immune Recognition System, *International Journal of Medical Science*, Vol 11, No 5, pp. 508-514.

- Smith, S.W., 1999, *The Scientist and Engineer's Guide to Digital Signal Processing*, Second Edition, California Technical Publishing, San Diego.
- Stockman I., 1992, *DNA probes for the identification of mycobacteria*, *Clinical microbiology procedures handbook*, American Society for Microbiology,
- In: Tortoli, E. and Bartoloni A., 1996, High-performance liquid chromatography and identification of mycobacteria, *Review In Medical Microbiology*, No 4, Vol 7, 207-219.
- Suyanto, 2005, *Algoritma Genetika dalam Matlab*, Andi Offset, Yogyakarta.
- Syhre, M. and Chambers, S.T., 2008, The scent of *Mycobacterium tuberculosis*, *Tuberculosis*, Vol 88, 317-323.
- Talbot, E.A., 2010, Xpert MTB/RIF: Evidence, WHO Policy Recommendations and Roadmap, *Foundation for Innovative new Diagnostic (FinD)*.
- Tanudjaja, H., 2007, Pengolahan Sinyal Digital dan Sistem Pemrosesan Sinyal, Teori dan Penyelesaian, *Andi*, Yogyakarta.
- Tortoli, E. and Bartoloni A., 1996, High-performance liquid chromatography and identification of mycobacteria, *Review In Medical Microbiology*, No 4, Vol 7, 207-219.
- Triyana, K., Masthori, A., Supardi, B.P., dan Bharata, A.M.I., 2007, Prototype of Electronic Nose Based on Gas Sensors Array and BackPropagation Neural Network for Tea Classification, *Berkala MIPA*, 17 (3), 57.
- Triyana, K., Kurniawati, D., Agustika, K., Hardoyono, F., Chotimah, 2012, Penerapan Metode Ekstraksi Ciri Berbasis Transformasi Wavelet Diskrit untuk Meningkatkan Unjuk Kerja Electronic Nose, *Prosiding Pertemuan Ilmiah XXVI HFI Jateng & DIY*, Purworejo 14 April 2012, 90-93.
- Triyana, K., Subekti, M.T., Aji, P., Hidayat, S.N., Rohman, A., 2015, Development of Electronic Nose with Low-Cost Dynamic Headspace for Classifying Vegetable Oils and Animal Fats, *Applied Mechanics and Materials*, Vol 771, pp 50-54.
- WHO, 2012, Global TB Report
- Widodo, T.S., 2005, Sistem Neuro Fuzzy untuk Pengolahan Informasi, Pemodelan, dan Kendali, Edisi 1, *Graha Ilmu*, Yogyakarta.

- Widrow, B. and Hoff, M.E., 1960, Adaptive Switching Circuits, *IRE WESCON Conventional Record*, 4:96-104, New York.
- Yan, J., Ryan, M., dan Power, J., 1994, Using Fuzzy Logic Towards Intelligent Systems, *Pentice Hall*, New York.
- Yao, Y., Barghava N., Kim J., Niederweis M., and Marassi, F.M, 2012, Molecular structure and peptidoglycan recognition of Mycobacterium tuberculosis ArfA (*Rv0899*), *Journal Molecular Biology*, Vol. 416, 208-220.
- Yeo, W. H. , Liu, S., Chung, J. H., Liu, Y., and Lee, K.H., 2009, Rapid Detection of Mycobacterium Tuberculosis Cells by using Microtip-based Immunoassay, *Analytical and Bioanalytical Chemistry*, Vol. 393, No. 6-7, 1593–1600 in Zhou, L., He, X., He, D., Wang, K., and Qin, D., 2011, Biosensing Technologies for Mycobacterium Tuberculosis Detection: Status and New Developments, *Clinical and Developmental Immunology*, No 193963, Vol. 2011, 1-8.
- Zadeh, L.A., 2008, Is There a need for fuzzy logic?, *Information Scinces*, No 178, 2751-2779.
- Zheng, Z. and Cheng, C., 2009, The Sample Feature Extraction of Visual Evoked Potentials Based of Wavelet Transform Technique, *First International Workshop on Education Technology and Computer Sciences*, 750-754.
- Zhou, L., He, X., He, D., Wang, K., and Qin, D., 2011, Biosensing Technologies for Mycobacterium Tuberculosis Detection: Status and New Development, *Clinical and Developmental Immunology*, No 193963, Vol. 2011, 1-8.
- Zimmermann, 1991, Fuzzy Sets Theory and Its Applications, Edisi 2, *Kluwer Academic Publishers*, Massachusetts.