

DAFTAR PUSTAKA

- Ali, S. dan Shah, M., 2007. A Lagrangian particle dynamics approach for crowd flow segmentation and stability analysis. In *Proceedings of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition*. hal. 1–6.
- Allain, P., Courty, N. dan Corpetti, T., 2012. AGORASET : a dataset for crowd video analysis. In *1st ICPR International Workshop on Pattern Recognition and Crowd Analysis*. hal. 1–6.
- Arsyad, A., 2013. *Media Pembelajaran* 16 ed., Rajawali Press.
- Baker, S., Scharstein, D., Lewis, J.P., Roth, S., Black, M.J. dan Szeliski, R., 2011. A database and evaluation methodology for optical flow. *International Journal of Computer Vision*, 92(1), hal.1–31.
- Bandara, A.M.R.R., Ranathunga, L. dan Abdullah, N.A., 2016. A feature clustering approach based on Histogram of Oriented Optical Flow and superpixels. In *2015 IEEE 10th International Conference on Industrial and Information Systems, ICIIS 2015 - Conference Proceedings*. hal. 480–484.
- Barron, J., Fleet, D. dan Beauchemin, S., 1994. Performance of optical flow techniques. *International journal of computer Vision*, 12(1), hal.43–77.
- Barron, J.L., Fleet, D.J., Beauchemin, S.S. dan Burkitt, T.A., 1992. Performance of Optical Flow Techniques. In *1992 IEEE Computer Society Conference on Computer Vision and Pattern Recognition*. hal. 236–242.
- Basset, A., Bouthemy, P. dan Kervrann, C., 2013. Frame-by-frame crowd motion classification from affine motion models. In *2013 10th IEEE International Conference on Advanced Video and Signal Based Surveillance, AVSS 2013*. hal. 282–287.
- Bay, H., Tuytelaars, T. dan Van Gool, L., 2006. SURF: Speeded up robust features. *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, 3951 LNCS, hal.404–417.
- Beauchemin, S.S.S. dan Barron, J.L.L., 1995. The Computation of Optical Flow. *ACM Computing Surveys*, 27(3), hal.433–467.
- Beleznai, C. dan Bischof, H., 2009. Fast human detection in crowded scenes by contour integration and local shape estimation. *2009 IEEE Computer Society Conference on Computer Vision and Pattern Recognition Workshops, CVPR Workshops 2009*, hal.2246–2253.

- Benabbas, Y., 2011. Human behavior analysis from videos using optical flow. , (33), hal.1–49.
- Benabbas, Y., Amir, S., Lablack, A. dan Djeraba, C., 2011a. Human Action Recognition Using Direction and Magnitude Models of Motion. In *International Conference on Computer Vision Theory and Applications (VISAPP) 2011*. hal. 277–285.
- Benabbas, Y., Ihaddadene, N. dan Djeraba, C., 2011b. Motion pattern extraction and event detection for automatic visual surveillance. *EURASIP Journal on Image and Video Processing*, 2011, hal.1–15.
- BNPB, 2015. Data dan Informasi Bencana Indonesia. *Badan Nasional Penanggulangan Bencana*. Available at: <http://dibi.bnpb.go.id> [Diakses April 7, 2017].
- Brox, T., Papenberg, N. dan Weickert, J., 2004. High Accuracy Optical Flow Estimation Based on a Theory for Warping. *Computer Vision - ECCV 2004*, 4(May), hal.25–36.
- Bruhn, A., Weickert, J. dan Schnorr, C., 2005. Lucas / Kanade Meets Horn / Schunck : Combining Local and Global Optic Flow Methods. *International Journal of Computer Vision*, 61(3), hal.211–231.
- Burton, A. dan Radford, J., 1978. *Thinking in Perspective: Critical Essays in the Study of Thought Processes*, Routledge.
- Camus, T., 1997. Real-Time Quantized Optical Flow. *Real-Time Imaging*, 3(2), hal.71–86.
- Chandra, I., 2003. *Utility Audio/Video*, Jakarta: PT. Elex Media Komputindo.
- Chaudhry, R., Ravichandran, A., Hager, G. dan Vidal, R., 2009. Histograms of oriented optical flow and Binet-Cauchy kernels on nonlinear dynamical systems for the recognition of human actions. In *2009 IEEE Conference on Computer Vision and Pattern Recognition*. Ieee, hal. 1932–1939.
- Cho, S.-H. dan Kang, H.-B., 2013. Abnormal Behavior Detection Using Hybrid Agents in Crowded Scenes. *Pattern Recognition Letters*, 44, hal.64–70.
- Collins, R.T. dkk., 2010. *A System for Video Surveillance and Monitoring*,
- Colque, R.V.H.M., Junior, C.A.C. dan Schwartz, W.R., 2015. Histograms of Optical Flow Orientation and Magnitude to Detect Anomalous Events in Videos. In *Conference on Graphics, Patterns and Images (SIBGRAPI 2015)*. hal. 1–9.
- Cui, S., Li, N. dan Liu, Z., 2011. Multi-directional crowded objects segmentation based on optical flow histogram. In *Proceedings - 4th International Congress on Image and Signal Processing, CISP 2011*. hal. 552–555.
- Dee, H.M. dan Caplier, A., 2010. Crowd Behaviour Analysis Using Histograms of Motion Direction. In *2010 IEEE 17th International Conference on Image*

- Processing*. Hong Kong, hal. 1545–1548.
- Ferryman, J. dan Shahrokni, A., 2009. PETS2009: Dataset and challenge. In *Twelfth IEEE International Workshop on Performance Evaluation of Tracking and Surveillance (PETS-Winter)*. hal. 143–148.
- Gonzalez, R.C. dan Woods, R.E., 2007. *Digital Image Processing (3rd Edition)* 3 ed., Prentice Hall.
- Gujarati, D.N., 2004. *Basic Econometrics* 4 ed.,
- Haritaoglu, I., Harwood, D. dan Davis, L.S., 2000. W4: Real-time Surveillance of People and Their Activities. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 22(8), hal.809–830.
- Haritaoglu, I., Harwood, D. dan Davis, L.S., 1998. W4S : A Real-Time System for Detecting and Tracking People in 2 1/2 D. In *IEEE Computer Society Conference on Computer Vision and Pattern Recognition*, 1998. hal. 962.
- Hasibuan, L.F., 2012. *Analisis Pengaruh Retribusi Daerah dan Ekspor Barang Konsumsi Terhadap Penerimaan Pemerintah Propinsi Sumatera Utara*. Universitas Sumatera Utara.
- Horn, B.K.P. dan Schunck, B.G., 1981a. Determining Optical Flow. *Elsevier Artificial Intelligence*, 17(1–3), hal.185–203.
- Horn, B.K.P.P. dan Schunck, B.G., 1981b. Determining Optical Flow. *Elsevier Artificial Intelligence*, 17(1–3), hal.185–203.
- ITU-R, 2011. *BT 601: Studio encoding parameters of digital television for standard 4: 3 and wide-screen 16: 9 aspect ratios*,
- Kadir, A. dan Susanto, A., 2013. *Teori dan Aplikasi Pengolahan Citra Digital*, Yogyakarta: Andi.
- KBBI, 2016. Video. kbbi.kemdikbud.go.id. Available at: <http://kbbi.kemdikbud.go.id/entri/video> [Diakses Desember 10, 2016].
- Khan, S.D., 2013. Estimating speeds and directions of pedestrians in real-time videos: A solution to road-safety problem. In *CEUR Workshop Proceedings*. hal. 1–14.
- Koh, W.L., Lin, L. dan Zhou, S., 2008. Modelling and Simulation of Pedestrian Behaviours. In *2008 22nd Workshop on Principles of Advanced and Distributed Simulation*. Ieee, hal. 43–50.
- Kratz, L. dan Nishino, K., 2012. Tracking Pedestrians Using Local Spatio-Temporal Motion Patterns in Extremely Crowded Scenes. *IEEE Transaction on Pattern Analysis and Machine Intelligence*, 34(5), hal.987–1002.
- Krishnamurthy, R., Moulin, P. dan Woods, J., 1995. Optical flow techniques applied to video coding. In *International Conference on Image Processing*, 1995. hal. 570–573.

- Kulkarni, A.D., 1993. *Artificial neural networks for image understanding*, John Wiley & Sons, Inc.
- Kundu, M., Sengupta, D. dan Dastidar, J.G., 2014. Tracking Direction of Human Movement – An Efficient Implementation using Skeleton. *International Journal of Computer Applications*, 96(13), hal.27–33.
- Kutner, M., Nachtsheim, C., Neter, J. dan Li, W., 2004. *Applied Linear Statistical Models* 5 ed., McGraw-Hill/Irwin.
- Lang, K. dan Lang, G., 1968. Collective Behavior. *International Encyclopaedia of the Social Sciences*.
- Lertniphonphan, K., Aramvith, S. dan Chalidabhongse, T.H., 2011. Human action recognition using direction histograms of optical flow. *2011 11th International Symposium on Communications & Information Technologies (ISCIT)*, hal.574–579.
- Li, B., Yao, Q. dan Wang, K., 2012. A review on vision-based pedestrian detection in intelligent transportation systems. In *9th IEEE International Conference on Networking, Sensing and Control (ICNSC)*, 2012. hal. 393–398.
- Li, T., Chang, H., Wang, M., Ni, B. dan Hong, R., 2015. Crowded Scene Analysis : A Survey. *IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY*, 25(3), hal.367–386.
- Li, W., Mahadevan, V. dan Vasconcelos, N., 2014. Anomaly detection and localization in crowded scenes. *IEEE transactions on pattern analysis and machine intelligence*, 36(1), hal.18–32.
- Lowe, D.G., 1999. Object recognition from local scale-invariant features. In *Proceedings of the Seventh IEEE International Conference on Computer Vision*. hal. 1150–1157.
- Lubis, N.S., 2013. *Analisis Perbandingan Kompresi File Video Dengan Motion Picture Expert Group-4 Dan Flash Video Dengan Menggunakan Algoritma Huffman*. Universitas Sumatera Utara.
- Lucas, B.D. dan Kanade, T., 1981. An Iterative Image Registration Technique with an Application to Stereo Vision. In *Proc. 7th International Conference on Artificial Intelligence (IJCAI) 1981*. hal. 121–130.
- Mariner, L., 2007. *Cleared for Takeoff: English for Pilots, Book 1* K LaVergne, ed., AE Link Publications.
- Martínez, F., Manzanera, A. dan Romero, E., 2012. A Motion Descriptor Based on Statistics of Optical Flow Orientations for Action Classification in Video-Surveillance. *Communications in Computer and Information Science*, 346(2), hal.267–274.
- McCarthy, C. dan Barnes, N., 2004. Optical Flow Techniques for Indoor Navigation with a Mobile Robot. In *Proceedings of the 2004 IEEE International Conference on Robotics & Automation*. hal. 5093–5098.

- Mehran, R., Oyama, A. dan Shah, M., 2009. Abnormal crowd behavior detection using social force model. In *2009 IEEE Conference on Computer Vision and Pattern Recognition*. Ieee, hal. 935–942.
- Mingqiang, Y., Kidiyo, K. dan Joseph, R., 2008. A survey of shape feature extraction techniques. In P.-Y. Yin, ed. *Pattern Recognition*. hal. 43–90.
- Mohler, B.J., Thompson, W.B., Creem-Regehr, S.H., Pick, H.L. dan Warren, W.H., 2007. Visual flow influences gait transition speed and preferred walking speed. *Experimental Brain Research*, 181(2), hal.221–228.
- Munteanu, C. dan Rosa, A., 2004. Gray-Scale Image Enhancement as an Automatic Process Driven by Evolution. *IEEE Transactions on Systems, Man and Cybernetics Part B: Cybernetics*, 34(2), hal.1292–1298.
- Mustofa, M., 2000. Memahami kerusakan sosial, suatu kendala menuju masyarakat madani. *Jurnal Kriminologi Indonesia*, 1(1), hal.10–19.
- Nagel, H.H., 1987. On the estimation of optical flow: relations between different approaches and some new results. *Artificial Intelligence*, 33(3), hal.299–324.
- Newsam, S.D. dan Kamath, C., 2005. Comparing shape and texture features for pattern recognition in simulation data. In *Electronic Imaging 2005*. hal. 106–117.
- Omer, O. a., 2012. Region-based Horn-Schunck optical flow estimation. In *2012 Japan-Egypt Conference on Electronics, Communications and Computers*. Ieee, hal. 73–78.
- Otsu, N., 1979. A threshold selection method from gray-level histograms. *IEEE Transactions on Systems, Man, and Cybernetics*, 9(1), hal.62–66.
- P. Geetha, Pandeewari, S.T. dan Mohanan, S., 2012. Visual Attention Based Keyframes Extraction and Video Summarization. In *Computer Science & Information Technology*. hal. 179–190.
- Patel, E. dan Shukla, D., 2013. Comparison of Optical Flow Algorithms for Speed Determination of Moving Objects. *International Journal of Computer Applications*, 63(5).
- Perš, J., Sulić, V., Kristan, M., Perše, M., Polanec, K. dan Kovačič, S., 2010. Histograms of optical flow for efficient representation of body motion. *Pattern Recognition Letters*, 31(11), hal.1369–1376.
- Prasetyo, E., 2012. *Data Mining: Konsep dan Aplikasi menggunakan Matlab 1 ed.*, Yogyakarta: Andi Offset.
- Rao, A.S., Gubbi, J., Marusic, S., Maher, A. dan Palaniswami, M., 2013. Determination of object directions using optical flow for crowd monitoring. *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, 8034 LNCS(PART 2), hal.613–622.

- Ren, T., Liu, Y. dan Wu, G., 2008. Full-reference quality assessment for video summary. In *Proceedings - IEEE International Conference on Data Mining Workshops, ICDM Workshops 2008*. hal. 874–883.
- Robert, F., Santos-Victor, J. dan Crowley, J., 2002. Caviar Dataset. *Univ of Edinburgh*. Available at: <http://homepages.inf.ed.ac.uk/rbf/CAVIAR/> [Diakses April 17, 2017].
- Shao, J., Loy, C.C. dan Wang, X., 2016. Learning Scene-Independent Group Descriptors for Crowd Understanding. In *IEEE Transaction on Circuits and Systems for Video Technology (TCSVT)*.
- Shao, J., Loy, C.C. dan Wang, X., 2014. Scene-Independent Group Profiling in Crowd. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition. 2014*. hal. 2219–2226.
- Simoncelli, E.P., 1994. Design of multi-dimensional derivative filters. In *Proceedings of 1st International Conference on Image Processing*. IEEE Comput. Soc. Press, hal. 790–794.
- Singh, M., Basu, a. dan Mandal, M.K., 2008. Human Activity Recognition Based on Silhouette Directionality. *IEEE Transactions on Circuits and Systems for Video Technology*, 18(9), hal.1280–1292.
- Smirg, O., Smekal, Z., Dutta, M.K. dan Kakani, B., 2013. Automatic Detection of the Direction and Speed of Moving Objects in the Video. In *Sixth International Conference on Contemporary Computing (IC3)*. hal. 86–90.
- Sokolova, M. dan Lapalme, G., 2009. A systematic analysis of performance measures for classification tasks. *Information Processing and Management*, 45(4), hal.427–437.
- Solichin, A., Harjoko, A. dan Putra, A.E., 2014. A Survey of Pedestrian Detection in Video. *International Journal of Advanced Computer Science and Applications (IJACSA)*, 5(10), hal.41–47.
- Solichin, A., Harjoko, A. dan Putra, A.E., 2015. Grid-based Histogram of Oriented Optical Flow for Analyzing Movements on Video Data. In *2015 International Conference on Data and Software Engineering*. hal. 114–119.
- Sugiyono, 2010. *Metode Penelitian Kuantitatif Kualitatif dan R&D*, Bandung: Penerbit Alfabeta.
- Sujarweni, V.W., 2012. *SPSS untuk Paramedis* 1 ed., Gava Media.
- Sujatha, C. dan Mudenagudi, U., 2011. A Study on Keyframe Extraction Methods for Video Summary. In *2011 International Conference on Computational Intelligence and Communication Networks*. Ieee, hal. 73–77.
- Sun, D., Roth, S. dan Black, M.J., 2010. Secrets of Optical Flow Estimation and Their Principles. In *Proceedings of the IEEE conference on computer vision and pattern recognition*.

- Taylor, R., 2013. A Beginner Guide to Frame Rates. *AFrame.Com*. Available at: <http://aframe.com/blog/2013/07/a-beginners-guide-to-frame-rates/> [Diakses April 21, 2017].
- Tenbrinck, D., Schmid, S., Jiang, X., Schäfers, K. dan Stypmann, J., 2013. Histogram-based optical flow for motion estimation in ultrasound imaging. *Journal of Mathematical Imaging and Vision*, 47(1–2), hal.138–150.
- Thida, M., Eng, H.L. dan Remagnino, P., 2013. Laplacian eigenmap with temporal constraints for local abnormality detection in crowded scenes. *IEEE Transactions on Cybernetics*, 43(6), hal.2147–2156.
- Tomasi, C., 1991. *Detection and Tracking of Point Features*,
- Tuceryan, M. dan Jain, A.K., 1998. Texture Analysis. In C. H. Chen, L. F. Pau, & P. S. . Wang, ed. *The Handbook of Pattern Recognition and Computer Vision (2nd Edition)*. World Scientific Publishing Co., Inc., hal. 207–248.
- UMN, 2006. Unusual Crowd Activity Dataset of University of Minnesota, Department of Computer Science and Engineering. *UMN*. Available at: <http://mha.cs.umn.edu/movies/crowd-activity-all.avi> [Diakses Agustus 10, 2015].
- Wang, T. dan Snoussi, H., 2014. Detection of abnormal visual events via global optical flow orientation histogram. *IEEE Transactions on Information Forensics and Security*, 9(6), hal.988–998.
- Wang, T. dan Snoussi, H., 2013. Histograms of optical flow orientation for abnormal events detection. In *IEEE International Workshop on Performance Evaluation of Tracking and Surveillance, PETS*. hal. 45–52.
- Wei, G., Hou, Z., Li, W. dan Yu, W., 2013. Color Image Optical Flow Estimation Algorithm with Shadow Suppression. In *2013 Seventh International Conference on Image and Graphics*. Ieee, hal. 423–427.
- Wikipedia, 2017. NTSC. *Wikipedia*. Available at: <https://en.wikipedia.org/wiki/NTSC> [Diakses April 21, 2017].
- Wikipedia, 2011. Optical Flow. Available at: http://en.wikipedia.org/wiki/Optical_flow.
- Wu, S., Moore, B.E. dan Shah, M., 2010. Chaotic invariants of lagrangian particle trajectories for anomaly detection in crowded scenes. In *Proceedings of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition*. hal. 2054–2060.
- Wu, S., Wong, H.-S. dan Yu, Z., 2014. A Bayesian model for crowd escape behavior detection. *IEEE Transaction on Circuits and Systems for Video Technology (TCSVT)*, 24(1), hal.85–98.
- Zaman, T., 2011. [2D] Optical Flow. *www.timzaman.com*. Available at: <http://www.timzaman.com/2011/04/2d-optical-flow/> [Diakses Desember 1, 2016].

- Zhang, Y., Lu, H., Zhang, L. dan Ruan, X., 2016. Combining motion and appearance cues for anomaly detection. *Pattern Recognition*, 51(2016), hal.443–452.
- Zheng, G. dan Chen, Y., 2012. A review on vision-based pedestrian detection. In *2012 IEEE Global High Tech Congress on Electronics*. Ieee, hal. 49–54.
- Zitouni, M.S., Bhaskar, H., Dias, J. dan Al-Mualla, M.E., 2016. Advances and trends in visual crowd analysis: A systematic survey and evaluation of crowd modelling techniques. *Neurocomputing*, 186, hal.139–159.
- Ziyun, L. dan Wei, L., 2010. The Compensated HS Optical Flow Estimation Based on Matching Harris Corner Points. In *2010 International Conference on Electrical and Control Engineering*. Ieee, hal. 2279–2282.