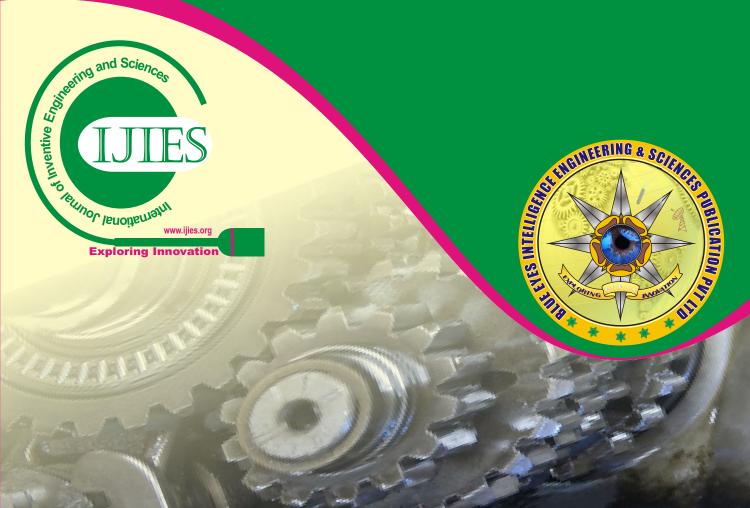


ISSN : 2319-9598 Website: www.ijies.org Volume-4 Issue-7, December 2017 Published by: Blue Eyes Intelligence Engineering and Sciences Publication Pvt.



Editor-In-Chief

Dr. Shiv K Sahu Ph.D. (CSE), M.Tech. (IT, Honors), B.Tech. (IT) Director, Blue Eyes Intelligence Engineering & Sciences Publication Pvt. Ltd., Bhopal(M.P.), India

Dr. Shachi Sahu

Ph.D. (Chemistry), M.Sc. (Organic Chemistry)

Additional Director, Blue Eyes Intelligence Engineering & Sciences Publication Pvt. Ltd., Bhopal(M.P.), India

Vice Editor-In-Chief

Dr. Himani Sharma

Professor & Dean, Department of Electronics & Communication Engineering, MLR Institute of Technology, Laxman Reddy Avenue, Dundigal, Hyderabad, India

Prof.(Dr.) Anuranjan Misra

Professor & Head, Computer Science & Engineering and Information Technology & Engineering, Noida International University, Noida (U.P.), India

Advisory Chair

Dr. T.C. Manjunath

Principal & Professor, HKBK College of Engg, Nagawara, Arabic College Road, Bengaluru-560045, Karnataka, India

Dr. Kosta Yogeshwar Prasad

Director, Technical Campus, Marwadi Education Foundation's Group of Institutions, Rajkot-Morbi Highway, Gauridad, Rajkot, Gujarat, India

Dr. Dinesh Varshney

Director of College Development Counceling, Devi Ahilya University, Indore (M.P.), Professor, School of Physics, Devi Ahilya University, Indore (M.P.), and Regional Director, Madhya Pradesh Bhoj (Open) University, Indore (M.P.), India

Dr. P. Dananjayan

Professor, Department of Department of ECE, Pondicherry Engineering College, Pondicherry,India

Dr. Sadhana Vishwakarma

Associate Professor, Department of Engineering Chemistry, Technocrat Institute of Technology, Bhopal(M.P.), India

Technical Chair

Dr. A. K. Verma

Professor, Department of Computer Science and Engineering, Thapar University, Patiala (Punjab), India

Dr. Durgesh Mishra

Chairman, IEEE Computer Society Chapter Bombay Section, Chairman IEEE MP Subsection, Professor & Dean (R&D), Acropolis Institute of Technology, Indore (M.P.), India

Dr. Xiaoguang Yue

Associate Professor, College of Computer and Information, Southwest Forestry University, Kunming (Yunnan), China

Dr. Veronica Mc Gowan

Associate Professor, Department of Computer and Business Information Systems, Delaware Valley College, Doylestown, PA, Allman China

Dr. Mohd. Ali Hussain

Professor, Department of Computer Science and Engineering, Sri Sai Madhavi Institute of Science & Technology, Rajahmundry (A.P.), India

Dr. Mohd. Nazri Ismail

Professor, System and Networking Department, Jalan Sultan Ismail, Kaula Lumpur, MALAYSIA

Dr. Sunil Mishra

Associate Professor, Department of Communication Skills (English), Dronacharya College of Engineering, Farrukhnagar, Gurgaon (Haryana), India

Dr. Labib Francis Gergis Rofaiel

Associate Professor, Department of Digital Communications and Electronics, Misr Academy for Engineering and Technology, Mansoura City, Egypt

Dr. Pavol Tanuska

Associate Professor, Department of Applied Informetics, Automation, and Mathematics, Trnava, Slovakia

Dr. VS Giridhar Akula

Professor, Avanthi's Research & Technological Academy, Gunthapally, Hyderabad, Andhra Pradesh, India

Managing Chair

Mr. Jitendra Kumar Sen

International Journal of Inventive Engineering and Sciences (IJIES)

Reviewer Chair

Dr. R.Balamurugan

Professor, Department of Electrical and Electronics Engineering, KSR College of Technology, Tiruchengode Tamilnadu, India

Dr. Ganesh Kumar T

Department of Computer Science and Engineering, Research Scholar, Manonmaniam Sundaranar University, Tirunelveli, India

Dr. K.Siva Rama Krishna

Assoc. Professor, Department of Civil Engineering, Gitam University Visakhapatnam, India

Dr. P.Sanjeevikumar

Assoc. Professor, Department of Electrical Engineering, Bharathi Street, Jeevanandhapuram, Lawspet, Puducherry, India

Dr. DALAH Mohamed

Professor, Department of Mathematics, Faculty of Sciences, University of Constantine 1 / Algeria

Dr. Shoukat Ali

Professor, Department of Mathematics Govt. Engineering College Bikaner Karni Industrial Area, Pugal Road, Bikaner-334004 Rajasthan State, India

Dr. Vijay K Chaudhari

Professor & Head, Department of Information Technology, Truba Institute of Engineering and Technology, Bhopal (M.P.), India

Dr. Ricardo Rodriguez Jorge

Associate Professor, Technological University of Ciudad Juarez

Dr. N. Venkatesan

Assoc. Professor in Department of IT, Bharathiyar College of Engg & Tech, Karaikal

Dr. Syed umar

Assoc. Professor Department of ECM, KL University, Green Fields, Vaddeswaram, Guntur District, (A.P.), India

Dr. Manoranjan Pradhan

Professor, Department of Computer Science and Engineering, Gandhi Institute for Technological Advancement(GITA), At Badaraghunathpur, Odisha, India

Dr. H.S. Behera

Assoc. Professor, Department of Computer Science and Engineering, Veer Surendra Sai University of Technology (VSSUT) Burla, Sambalpur, Odisha, India

Dr. Sunil Kumar

Assoc. Professor, Department of Mathematics, National Institute of Technology, Jharkhand, India

Dr. Shrikant Tiwari

Assoc. Professor, Department of Computer Science & Engineering, Shri Shankaracharya Group of Institutions, Chattisgarh, India

Dr. Ahmed AbdAllah Hassan

Assoc. Professor, Department of Computer Science and Informatics, community college, Taibah university, Al Medina Al Munawara, Saud Arabia

Dr. Vijay H Mankar

Associate Professor, Department of Electronics and Telecommunication, Govt. Poly Technique, Nagpur (Maharastra), India

Dr. Govindaraj Thangavel

Professor & Head, Department of EEE, Muthayammal Engineering College, Rasipuram, Namakkal, Tamilnadu, India

Volume-4 Issue-7, December 2017, ISSN: 2319-9598 (Online)

Published By: Blue Eyes Intelligence Engineering & Sciences Publication Pvt. Ltd.

	Authors:	Gaurav Choudhary, Manju
	Paper Title:	Energy Components Based Image Fusion Technique for Both Gray Scale and Color Images

Abstract: In this paper, an image fusion scheme based on Hilbert vibration decomposition (HVD) is proposed. In this proposed technique, the images to be fused are first enhanced and then converted into 1-D signals which are decomposed using the HVD technique into different components called energy components. These energy components are fused by taking the average of corresponding energy components except the last component having least energy. Simulation results of the proposed technique are carried out in MATLAB and its performance is compared with other existing techniques using some commonly used performance metrics. It is seen that the proposed technique gives better visual appearance of the fused image than other existing techniques and the values of the several performance metrics are also better/comparable with other techniques. The simulation results obtained for color images show that the proposed algorithm works well for color images in HSI color space also.

Keywords: Image Fusion; Image Enhancement; Hilbert Vibration Decomposition.

References:

- Li, Shutao, Bin Yang, and Jianwen Hu. "Performance comparison of different multi-resolution transforms for image fusion." Information Fusion, vol.12, no. 2, pp. 74-84, 2011.
- 2 Pohl, Christine, and John van Genderen. "Structuring contemporary remote sensing image fusion." International Journal of Image and Data Fusion, vol. 6, no. 1, pp. 3-21, 2015.
- Zhijun Wang, "A comparative Analysis of Image fusion Methods." IEEE Trans. on GeoscienceAnd Remote SenSing,vol. 43, pp. 1391-1402, 3. 2005.
- 4. T. M. Tu, S.c. Su, H.C. Shyu, and P. S. Huang, "A new look at HIS likeimage fusion methods, " Information Fusion J, vol. 2, pp. 177-186, 2001.
- 5. Bai, Xiangzhi, Yu Zhang, Fugen Zhou, and Bindang Xue. "Quadtree-based multi-focus image fusion using a weighted focus-measure." Information Fusion, vol. 22, pp. 105-118, 2015.
- Toet, Alexander. "Image fusion by a ratio of low-pass pyramid." Pattern Recognition Letters, vol. 9, no. 4, pp. 245-253, 1989. 6.
- Liu, Zheng, Kazuhiko Tsukada, Koichi Hanasaki, Yeong-Khing Ho, and Y. P. Dai. "Image fusion by using steerable pyramid." Pattern 7. Recognition Letters, vol. 22, no. 9, pp. 929-939, 2001.
- 8. Li, Hui, B. S. Manjunath, and Sanjit K. Mitra. "Multisensor image fusion using the wavelet transform." Graphical models and image processing, vol. 57, no. 3, pp. 235-245, 1995.
- 9 Zhang, Zhong, and Rick S. Blum. "A categorization of multiscale-decomposition-based image fusion schemes with a performance study for a digital camera application." IEEE Proceedings, vol. 87, no. 8, pp. 1315-1326, 1999.
- 10. Pajares, Gonzalo, and Jesus Manuel De La Cruz. "A wavelet-based image fusion tutorial." Pattern recognition, vol. 37, no. 9, pp. 1855-1872, 2004.
- 11. Unser, Michael. "Texture classification and segmentation using wavelet frames." IEEE Trans. on Image Processing, vol. 4, no. 11, pp. 1549-1560, 1995.
- Li, Shutao, James T. Kwok, and Yaonan Wang. "Using the discrete wavelet frame transform to merge Landsat TM and SPOT panchromatic 12. images."Information Fusion, vol. 3, no. 1, pp. 17-23, 2002.
- Forster, Brigitte, Dimitri Van De Ville, Jesse Berent, Daniel Sage, and Michael Unser. "Complex wavelets for extended depth-of-field: A new 13. method for the fusion of multichannel microscopy images." Microscopy Research and technique, vol. 65, no. 1-2, pp. 33-42, 2004.
- 14. Ray, Lee A., and Reza R. Adhami. "Dual tree discrete wavelet transform with application to image fusion." IEEE Proceeding of the Thirty-Eighth Southeastern Symposium on System Theory, pp. 430-433, 2006.
- Nencini, Filippo, Andrea Garzelli, Stefano Baronti, and Luciano Alparone. "Remote sensing image fusion using the curvelet transform." 15. Information Fusion, vol. 8, no. 2, pp. 143-156, 2007.
- Tessens, Linda, Alessandro Ledda, Aleksandra Pizurica, and Wilfried Philips. "Extending the depth of field in microscopy through curvelet-16. based frequency-adaptive image fusion.", 2007. ICASSP 2007. IEEE International Conference on Acoustics, Speech and Signal Processing, vol. 1, pp. I-861, 2007.
- 17. Do, Minh N., and Martin Vetterli. "The contourlet transform: an efficient directional multiresolution image representation." IEEE Trans. on Image Processing, vol. 14, no. 12, pp. 2091-2106, 2005.
- Da Cunha, Arthur L., Jianping Zhou, and Minh N. Do. "The nonsubsampled contourlet transform: theory, design, and applications." IEEE 18 Trans. on Image Processing, vol. 15, no. 10, pp. 3089-3101, 2006.
- Naidu, V. P. S., and Bindu Elias. "A Novel Image Fusion Technique using DCT based Laplacian Pyramid." International Journal of Inventive 19. Engineering and Sciences (IJIES), pp. 2319-9598, 2013.
- Shaohui, Renhua Zhang, Hongbo Su, et al. "SAR and multispectral image fusion using generalized IHS transform based on a trous wavelet 20
- and EMD decompositions."IEEE Sensors Journal, vol. 10, no. 3, pp. 737-745, 2010. Dong, Weihua, Xian'en Li, Xiangguo Lin, et al. "A Bidimensional Empirical Mode Decomposition Method for Fusion of Multispectral and Panchromatic Remote Sensing Images." Remote Sensing, vol. 6, no. 9, pp. 8446-8467, 2014. 21.
- Ehsan, Shoaib, Syed Muhammad Umer Abdullah, et al. "Multi-Scale Pixel-Based Image Fusion Using Multivariate Empirical Mode 22. Decomposition."Sensors, vol. 15, no. 5, pp. 10923-10947, 2015.
- Feldman, Michael. "Time-varying vibration decomposition and analysis based on the Hilbert transform." Journal of Sound and Vibration, vol. 23. 295, no. 3, pp. 518-530, 2006.
- Feldman, Michael. "Hilbert transform in vibration analysis." Mechanical Systems and Signal Processing, vol. 25, no. 3, pp. 735-802, 2011. 24
- Sharma, H., and K. K. Sharma. "Baseline wander removal of ECG signals using Hilbert vibration decomposition." Electronics Letters, vol.51, 25. no. 6, pp. 447-449, 2015.
- Chen, Soong-Der, and Abd Rahman Ramli. "Minimum mean brightness error bi-histogram equalization in contrast enhancement." IEEE 26. Trans. on Consumer Electronics, vol. 49, no. 4, pp. 1310-1319, 2003.
- 27. Naik, Sarif Kumar, and C. A. Murthy. "Hue-preserving color image enhancement without gamut problem." IEEE Trans. on Image Processing, vol. 12, no. 12, pp. 1591-1598, 2003.
- Haghighat, Mohammad Bagher Akbari, Ali Aghagolzadeh, and Hadi Seyedarabi. "A non-reference image fusion metric based on mutual 28 information of image features." Computers & Electrical Engineering 37, vol. 5, pp. 744-756, 2011.

29.	Xydeas, C. S., and V. Pe	trović. "Objective image	e fusion performance measure.	" Electronics Letters,	vol. 36, no. 4	, pp. 308-309, 200
-----	--------------------------	--------------------------	-------------------------------	------------------------	----------------	--------------------

	Authors:	Rethishkumar S., R. Vijayakumar			
2.	Paper Title:	An Efficient Co-Resident Dos Attack Defense Mechanism for Cloud Computing using Two-Player Security Game Approach			

S. No

1.

Abstract: For cloud computing systems, Virtual Machines (VM) were conceived as the basic component. However, VMs give effective computing resources; they were prone to lots of security threats. Whereas few threats can be easily rectified, but few attacks like co-resident attacks were tedious process to identify. So, to reduce the co-resistance DOS attacks by creating it as tedious for attackers to initiate attacks, two-player game approach based defense mechanism is suggested in our work. The attacker behavior variations among the attacker and normal users under PSSF VM allocation policy, is examined initially in the proposed mechanism. EDBSCAN (Enhanced Density-based Spatial Clustering of Applications with Noise), is utilized to do the clustering analysis process. Based on the clustering algorithm, the Partial labeling is performed, to partially comprehend the users as legal or malicious. In order to classify the nodes, the semi-supervised learning using Deterministic Annealing Semi-supervised SVM (DAS3VM) optimized by branch and bounds method is performed. The two-player security game approach helps to raise the cost of introduction new VMs therefore reducing the probability of initiating co-resident DOS attack, once after the user accounts were classified. Therefore, the security threats can be avoided effectively with the help of the proposed defense mechanism. Experimental result confirms that the suggested co-resident DOS attack defense mechanism makes a desirable involvement to avoid the security threats.

Keywords: Co-Resident DOS Attack, PSSF, EDBSCAN, DAS3VM, Branch and Bound Method.

References:

- 1. Armbrust, M., Fox, A., Griffith, R., Joseph, A., Katz, R., et al.: Above the Clouds: A Berkeley View of Cloud Computing. Technical Report UCB/EECS-2009-28, University of California, Berkeley (2009)
- 2. Amazon. Amazon Elastic Compute Cloud (EC2). http://aws. amazon.com/ec2/
- 3. Ristenpart, T., Tromer, E., Shacham, H., Savage, S.: Hey, You, Get off of my cloud: exploring information leakage in third-party compute clouds. In: CCS'09: Proceedings of 16th ACM Conference on Computer and Communications Security, Chicago (2009)
- 4. Xu, Y., Bailey, M., Jahanian, F., Joshi, K., Hiltunen, M., Schlichting R.: An exploration of L2 cache covert channels in virtualized environments. In: Proceedings of 3rd ACM Workshop on Cloud Computing, Security (CCSW'11) (2011)
- Zhang, Y., Juels, A., Oprea, A., Reiter, M.K.: HomeAlone: Co-Residency Detection in the Cloud via Side-Channel Analysis. In: Proceedings of 2011 IEEE Symposium on Security and Privacy, Berkeley (2011)
- 6. Keller, E., Szefer, J., Rexford, J., Lee, R.B.: Eliminating the hypervisor attack surface for a more secure cloud. In: Proceedings of ACM Conference on Computer and Communications, Security (CCS'11) (2011)
- 7. Raj, H., Nathuji, R., Singh, A., England, P.: Resource management for isolation enhanced cloud services. In: Proceedings of 2009 ACM Workshop on Cloud Computing Security, CCSW '09, Chicago (2009)
- 8. Bier, V. M., & Azaiez, M. N. (Eds.). (2008). Game theoretic risk analysis of security threats (Vol. 128). Springer Science & Business Media.
- Han, Y., Chan, J., Alpcan, T., & Leckie, C. (2014, June). Virtual machine allocation policies against co-resident attacks in cloud computing. In 2014 IEEE International Conference on Communications (ICC) (pp. 786-792). IEEE.
- Han, Y., Alpcan, T., Chan, J., Leckie, C., & Rubinstein, B. I. (2016). A game theoretical approach to defend against co-resident attacks in cloud computing: Preventing co-residence using semi-supervised learning. IEEE Transactions on Information Forensics and Security, 11(3), 556-570.
- 11. Yinqian Zhang, Ari Juels, Alina Oprea (2011) "Home Alone: Co-Residency Detection in the Cloud via Side-Channel Analysis" 2011 IEEE Symposium on Security and Privacy.
- 12. Adam Bates, Benjamin Mood, Joe Pletcher, Hannah Pruse, Masoud Valafar (2010) "Detecting Co-Residency with Active Traffic Analysis Techniques".
- 13. Han Y, Tansu Alpcan, Jeffrey Chan, Christopher Leckie, (2011) "Security Games for Virtual Machine Allocation in Cloud Computing".
- 14. Yu, S.: Distributed Denial of Service Attack and Defense. Springer, 2014.
- 15. Lenon, M.: Cloudare infrastructure hit with 400gbs ntp-based ddos attack, 2014. http://www.securityweek.com/cloudflare-infrastructure-hit-400gbs-ntp-based-ddos-attack
- Kumar, N., Sharma, S.: Study of intrusion detection system for ddos attacks in cloud computing. In: Wireless and Optical Communications Networks (WOCN), 2013 Tenth International Conference on, pp. 1{5. IEEE, 2013.
- 17. Ismail, M.N., Aborujilah, A., Musa, S., Shahzad, A.: Detecting ooding based dos attack in cloud computing environment using covariance matrix approach. In: Proceedings of the 7th International Conference on Ubiquitous Information Management and Communication, p. 36. ACM, 2013.
- 18. Liu, H.: A new form of dos attack in a cloud and its avoidance mechanism. In: Proceedings of the 2010 ACM workshop on Cloud computing security workshop, pp. 65{76. ACM, 2010.
- 19. Bedi, H.S., Shiva, S.: Securing cloud infrastructure against co-resident dos attacks using game theoretic defense mechanisms. In: Proceedings of the International Conference on Advances in Computing, Communications and Informatics, pp. 463 [469. ACM, 2012.
- 20. Zunnurhain, K.: Fapa: a model to prevent ooding attacks in clouds. In: Proceedings of the 50th Annual Southeast Regional Conference, pp. 395{396. ACM, 2012.
- M. Ester, H.-P. Kriegel, J. Sander, and X. Xu, "A density-based algorithm for discovering clusters in large spatial databases with noise," in Proc. 2nd Int. Conf. Knowl. Discovery Data Mining (KDD), 1996, pp. 226–231.
- 22. Phung, D., Adams, B., Tran, K., Venkatesh, S. and Kumar, M. (2009) High Accuracy Context Recovery using Clustering Mechanisms, In proceedings of the seventh international conference on Pervasive Computing and Communications, PerCom Galveston, USA, Pp. 122-130
- 23. Chapelle, O., Sindhwani, V., & Keerthi, S. S. (2006). Branch and bound for semi-supervised support vector machines. In Advances in neural information processing systems (pp. 217-224).
- Y. Azar, S. Kamara, I. Menache, M. Raykova, and B. Shepard, "Co-location-resistant clouds," in Proc. 6th ACM Workshop Cloud Comput. Secur, 2014, pp. 9–20.

8-15