



Le Thanh Ha, Assoc. Prof. Dr.

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SUMMARY

- Assoc. Prof. Dr. Le Thanh Ha received B.S. and M.S. degrees in Information Technology from the College of Technology, Vietnam National University, Hanoi. In 2005, he received a Korean Government Scholarship for Ph.D program at the Department of Electronics Engineering at Korea University and got Ph.D degree in 2010. After graduation, he joined the Faculty of Information Technology, University of Engineering and Technology, Vietnam National University, Hanoi as an Associate Professor.
- His research interests are image/video analysis and processing, satellite image processing and computer vision. He has deep experiences in teaching Digital Image Processing, Computer Vision, Multimedia Communication courses for both undergraduate and postgraduate programs. He has also been principle and main investigator of many fundamental research and technology development projects funded by both domestic and international organizations. He also makes contributions in serving many domestic and international ICT academic conferences including KSE, NICS, ATC, SoICT, ICEIC, . . . In addition, he is member of the Institute of Electrical and Electronics Engineers (IEEE), The Institute of Electronics, Information and Communication Engineers (IEICE) and The Vietnamese Association for Pattern Recognition (VAPR).

EDUCATION

Bachelor Degree, Information Technology

Coltech of Technology, Vietnam National University, Hanoi, Vietnam.

Master Degree, Information Technology

Coltech of Technology, Vietnam National University, Hanoi, Vietnam.

Ph.D, Signal Processing & Multimedia Communication

School of Engineering, Korea University, Korea.

TEACHING AND RESEARCH

- Teaching courses:
 - Digital Image Processing
 - Computer Vision
 - Multimedia Processing and Communication
- Research topics:
 - Image Processing
 - Satellite Image Processing
 - Video Coding and Communication
 - Computer Vision and Video Analysis

PUBLICATIONS

Journals

1. Viet Nam Le, Thai An Nguyen, Duc Hoang Long Nguyen, Luu Tu Nguyen, **Thanh Ha Le**, Seung-Won and Thi Duyen Ngo. Research and Proposal of 3D Domain Processing Techniques in Woodblock Model Restoration. VNU Journal of Science: Computer Science & Communication Engineering. (Accepted for publication).
2. Le Cong Thuong, Viet Nam Le, Thi Duyen Ngo, Seung-won Jung, **Thanh Ha Le**. Developing an Objective Visual Quality Evaluation Pipeline for 3D Woodblock Characters. VNU Journal of Science: Computer Science & Communication Engineering (Accepted for publication).
3. Chau Ma-thi, Toan Truong-duc, Duyen Ngo-thi, **Ha Le-thanh**. An assistive IOT smart control system for the severe motor disabilities. To appear on Technology and Disability.
4. Thi Duyen Ngo, Hai Dang Kieu, Minh Hoa Nguyen, The Hoang-Anh Nguyen, Van Mao Can, Ba Hung Nguyen, **Thanh Ha Le**. An EEG & eye-tracking dataset of ALS patients & healthy people during eye-tracking-based spelling system usage. Sci Data 11, 664 (2024). <https://doi.org/10.1038/s41597-024-03501-y>.
5. J. H. Kim, K. -L. Ko, **Le Thanh Ha** and S. -W. Jung. Monocular Depth Estimation of Old Photos via Collaboration of Monocular and Stereo Networks. IEEE Access, vol. 11, pp. 11675-11684, 2023.
6. Nguyen Minh Hoa, Ngo Thi Duyen, Nguyen Ba Hung, Can Van Mao, Kieu Hai Dang, and **Le Thanh Ha**. On-screen keyboard controlled by gaze for Vietnamese people with amyotrophic lateral sclerosis. Technology and Disability 35.1 (2023): 53-65.
7. Duyen Ngo Thi, Cuong Ta Viet, Chau Ma Thi, Hoa Nguyen Minh, Hung Nguyen Xuan, **Thanh Ha Le**. Quality assessment criteria and methods for 3D digital replica of historical printing woodblocks. Journal on Computing and Cultural Heritage, 16 (3), 1-16, 29 July 2022.
8. Nhung Hong Thi Nguyen, Stuart Perry, Don Bone, **Thanh Ha Le**, Thuy Thi Nguyen. Two-stage convolutional neural network for road crack detection and segmentation. Expert Systems with Applications, Vol. 186, Dec 2021.
9. Thi Thanh Van Le, Vu Ngoc Quang, Pham Thanh Huyen, Ma Thi Chau, **Thanh Ha Le**. Journal of Research and Development on Information and Communication Technology. Special issue VNICT 2021.
10. Nguyen Duc Thao, Nguyen Viet Anh, **Thanh Ha Le**, Ngo Thi Duyen. Robustify Hand Tracking by Fusing Generative and Discriminative Methods. VNU Journal of Science: Computer Science and Communication Engineering. v. 37, n. 1, feb. 2021. ISSN 2588-1086.
11. Pham Thanh Tung, Hoang Van Xiem, Nguyen Trung Nghia, Dinh Trieu Duong and **Thanh Ha Le**. End-to-End Image Patch Quality Assessment for Image/Video With Compression Artifacts. In IEEE Access, vol. 8, pp. 215157-215172, 2020, doi: 10.1109/ACCESS.2020.3040416.
12. Nguyen The Hoang Anh, **Thanh Ha Le**, Bui The Duy. A Deep Wavelet Sparse Autoencoder Method for Online and Automatic Electrooculographical Artifact Removal. Neural Computing and Applications, 30 April 2020.
13. Xuan Thanh Nguyen, Thi Duyen Ngo, and **Thanh Ha Le**. A Spatial-temporal 3D Human Pose Reconstruction Framework. Journal of Information Processing Systems, 15, 2, (2019), 399 409.
14. Nguyen The Hoang Anh, T. T. Quyen Bui, Nguyen Truong Thang, **Thanh Ha Le**, The Duy Bui. A Robust PCA-SURE Thresholding Deep Neural Network Approach for Mental Task Brain Computer Interface. Journal of Informatics and Mathematical Sciences. Vol. 11, No. 3-4, pp. 1-24, 2019. ISSN 0975-5748.
15. Long Vuong Tung, Minh Le Dinh, Xiem HoangVan, Dinh Trieu Duong, Tieu Huu Vu, **Thanh Ha Le**. View Synthesis Method for 3D Video Coding Based on Temporal and Inter View. IET Image Processing, vol. 12, No.11, pp. 1919-2137, 2018 (SCI Indexed).
16. **Thanh Ha Le**, Seung-Won Jung, Chee Sun Won, A New Depth Image Quality Metric Using a Pair of Color and Depth Images, Multimedia Tools and Applications, vol. 76, pp. 11285-11303, 2017 (SCIE indexed).
17. **Thanh Ha Le**, Vuong Tung Long, Dinh Trieu Duong, and Seung-Won Jung, Reduced Reference Quality Metric for Synthesized Virtual Views in 3DTV, ETRI Journal, vol. 38, no. 6, pp. 1114-1123, Dec. 2016 (SCI Indexed).
18. Pham Thanh Nam, Vu Duy Khuong, Dinh Trieu Duong, and **Thanh Ha Le**, Efficient Region-of-Interest Based Adaptive Bit Allocation for 3D-TV Video Transmission over Networks, VNU Journal of Computer Science and Communication Engineering, Vol. 32, No.1, pp. 1-9, 2016.

19. Khac Phong Do, Ba Tung Nguyen, Xuan Thanh Nguyen, Quang Hung Bui, Nguyen Le Tran, Thi Nhat Thanh Nguyen, Van Quynh Vuong, **Thanh Ha Le**, Spatial interpolation and assimilation methods for satellite and ground meteorological data in Vietnam, *Journal of Information Processing Systems*, vol.11, no.4, pp. 556-572, 2015 (Scopus Indexed).
20. Xuan Thanh Nguyen, Ba Tung Nguyen, Khac Phong Do, Quang Hung Bui, Thi Nhat Thanh Nguyen, Van Quynh Vuong and **Thanh Ha Le**, Spatial Interpolation of Meteorologic Variables in Vietnam using the Kriging Method, *Journal of Information Processing Systems*, vol. 11, no. 1, pp. 134-147, 2015 (Scopus Indexed).
21. Yang Koo Lee, Thi Hong Nhan Vu, and **Thanh Ha Le**, Dual-Phase Approach to Improve Prediction of Heart Disease in Mobile Environment, *ETRI Journal*, vol. 37, no. 2, pp. 222-232, Apr. 2015 (SCI Indexed).
22. **Thanh Ha Le**, Thanh Thi Nhat Nguyen, Kristofer Lasko, Shriram Ilavajhala, Krishna Prasad Vadrevu and Chris Justice, Vegetation Fires And Air Pollution In Vietnam, *Environmental Pollution*, 2014 (SCI Indexed).
23. Chinh Huu Pham, Quoc Khanh Le, and **Thanh Ha Le**, Human Action Recognition Using Dynamic Time Warping and Voting Algorithm, *VNU Journal of Computer Science and Communication Engineering*, Vol. 30, No.1, pp. 22-30, 2014.
24. Quoc Khanh Le, Sy Tan Nguyen, Thi Nhat Thanh Nguyen, and **Thanh Ha Le**, Burned Area Detection After Wildfire Using Landsat 7 ETM+ SLC-off Images, *IEEK Transactions on Smart Processing & Computing*, vol. 2, no. 3, pp. 117-129, Jun. 2013.
25. Quoc Khanh Le, Chinh Huu Pham, and **Thanh Ha Le**, Road traffic control gesture recognition using depth images, *IEEK Transactions on Smart Processing & Computing*, vol. 1, no. 1, pp.1-7, Jul., 2012.
26. S.-W. Jung, **Thanh Ha Le**, and S.-J. Ko, A New Histogram Modification Based Reversible Data Hiding Algorithm Considering the Human Visual System, *IEEE Signal Processing Letters*, vol. 18, no. 2, pp. 95-98, Feb. 2011 (SCIE Indexed).
27. **Thanh Ha Le**, S.-W. Jung, S. -J. Baek, and S.-J. Ko, An Improved Method to the Macroblock-level Deblocking Scheme, *ETRI Journal*, vol. 33, no. 2, pp. 195-200, Apr. 2011 (SCI Indexed).
28. **Thanh Ha Le**, S.-W. Jung, K.-S. Chue, and S.-J. Ko, Image Segmentation based on a Modified Graph-Cut Algorithm, *Electronics Letters*, vol. 46, no.16, pp. 1121-1123, Aug. 2010. (SCI Indexed)
29. **Thanh Ha Le**, S.-W. Jung, C.-S. Park, and S.-J. Ko, A Macroblock-level Deblocking Method to Improve Coding Efficiency for H.264/AVC, *ETRI Journal*, vol. 32, no. 2, pp. 336-338, Apr. 2010. (SCI Indexed)
30. **Thanh Ha Le**, C.-S. Park, S.-W. Jung, and S.-J. Ko, An Improved Method to CABAC in the H.264/AVC Video Compression Standard, *IEICE Trans. Fundamentals*, vol. E92-A, no. 12, pp. 3355-3360, Dec. 2009. (SCIE Indexed)
31. S.-W. Jung, C.-S. Park, **Thanh Ha Le**, and S.-J. Ko, Adaptive Quarter-pel Motion Estimation and Motion Vector Coding Algorithm for the H.264/AVC Standard, *Optical Engineering*, vol. 48, no. 11, pp. 110502-1-3, Nov. 2009. (SCIE Indexed)
32. M.-C. Hwang, **Thanh Ha Le**, N.-H. Kim, C.-S. Park, and S.-J. Ko, Person Identification System for Future Digital TV with Intelligence, *IEEE Trans. Consumer Electronics*, vol. 53, no. 1, pp. 218-226, Feb. 2007. (SCI Indexed).

Conferences

1. Luu Tu Nguyen, Cong Thuong Le, **Thanh Ha Le**, and Thi Duyen Ngo. Surface Reconstruction from Point Cloud for Vietnamese Historical Printing Woodblocks: DeepFit model in Estimating Normal Vectors. In 2024 9th International Conference on Intelligent Information Technology (ICIIT 2024), February 23–25, 2024, Ho Chi Minh City, Vietnam.
2. Duc Hoang Long Nguyen, Cong Thuong Le, **Thanh Ha Le**, and Thi Duyen Ngo. Post-processing workflow for 3D Vietnamese Historical Printing Woodblocks Restoration from 2D prints. In 2024 9th International Conference on Intelligent Information Technology (ICIIT 2024).
3. Johan Phan, Le Cong Thuong, Xuan Hung Nguyen, Thai Trung Su, Seung-won Jung, **Thanh Ha Le**. Enigmatic Engraved Symbols on Printing Woodblocks. IAPW Woodblock International Conference at Yangzhou, China in November 2023.
4. Thi Duyen Ngo, Hung Ha Phan, **Thanh Ha Le**. 3D Web Presentation of the Royal Woodblocks from the Nguyen Dynasty: A Retrospective. IAPW Woodblock International Conference at Yangzhou, China in November 2023.

5. Thuong Le Cong, Viet Nam Le, Thi Duyen Ngo, **Thanh Ha Le**. Data-Driven Woodblock Printed Document Detection and Recognition Process in Vietnam: Building an Effective Annotation Procedure. IAPW Woodblock International Conference at Yangzhou, China in November 2023.
6. Nam Le Viet, An Nguyen Thai, Viet Cuong Ta, **Thanh Ha Le**. Exploring Potential Outcomes in 3D Inpainting of Woodblocks. IAPW Woodblock International Conference at Yangzhou, China in November 2023.
7. T. T. Dao, C. T. Le, T. D. Ngo and **Le Thanh Ha**. Detection and Recognition of Sino-Nom Characters on Woodblock-Printed Images. 2023 15th International Conference on Knowledge and Systems Engineering (KSE), Hanoi, Vietnam, 2023, pp. 1-6, doi: 10.1109/KSE59128.2023.10299440.
8. Nam Le Viet, Viet Cuong Ta, Thi Duyen Ngo, An Nguyen Thai, Seung-Won Jung, Thanh Ha Le, 3D Depth Map Inpainting for Vietnamese Historical Printing Woodblocks: A Gated Convolution Approach, 2023 15th International Conference on Knowledge and Systems Engineering (KSE), IEEE 2023.
9. Ma Thi Chau, Tran Hieu, Le Thanh Ha. The inevitable trend of applying Artificial Intelligence in Sports in Vietnam. The International Forum of Artificial Intelligence. Cairo. 2023.
10. Pham Tuan Dung, Ta Viet Cuong, and Pham Thi Thanh Thuy, **Le Thanh Ha**. Reducing Blocking Artifacts in CNN-Based Image Steganography by Additional Loss Functions. In: The 2020 International Conference on Knowledge and Systems Engineering (KSE), November 2020, Can Tho, Vietnam.
11. Tung Pham Thanh, Chau Ma Thi, Tuan Nguyen Manh, Linh Le Dinh and **Ha Le Thanh**. Compression Artifacts Image Patch database for Perceptual Quality Assessment. In: The 2020 International Conference on Knowledge and Systems Engineering (KSE), November 2020, Can Tho, Vietnam.
12. Tung-Long Vuong, Do-Van Nguyen, Tai-Long Nguyen, Cong-Minh Bui, Hai-Dang Kieu, Viet-Cuong Ta, Quoc-Long Tran, **Thanh-Ha Le**, Sharing Experience in Multitask Reinforcement Learning, Proceedings of the Twenty-Eighth International Joint Conference on Artificial Intelligence (IJCAI2019). Main track. Pages 3642-3648. <https://doi.org/10.24963/ijcai.2019/505>.
13. Hoang-Anh The Nguyen, Anh Tuan Do, **Thanh Ha Le**, The Duy Bui. A deep sparse autoencoder method for automatic EOG artifact removal. Control, Automation and Systems (ICCAS), 2019 19th International Conference on (pp. 346-351).
14. Nguyen The Hoang Anh, **Thanh Ha Le**, The Duy Bui. A Stacking Ensemble Learning Model for Mental State Recognition towards Implementation of Brain Computer Interface. In Proceedings of 6th NAFOSTED Conference on Information and Computer Science (NICS), 2019. (accepted for publication).
15. Tung Pham Thanh, Duong Dinh Trieu, Xiem Hoang Van, Tien Vu Huu, and **Thanh Ha Le**, Coding distortion modelling method for local image perception, The 10th International Conference on Knowledge and Systems Engineering (KSE2018), Ho Chi Minh City, Vietnam, Nov., 2018.
16. Nhung Nguyen, Stuart Perry, **Thanh Ha Le** and Thuy Nguyen Thi, Pavement Crack Detection using Convolutional Neural Network, The 9th International Symposium On Information And Communication Technology (SoICT2018), Da Nang City, Vietnam, Dec., 2018.
17. Van-Viet Doan, Duy-Hung Nguyen, Quoc-Long Tran, Do-Van Nguyen and **Thanh-Ha Le**, Real-time Image Semantic Segmentation Networks with Residual Depth-wise Separable Blocks, Joint 10th International Conference on Soft Computing and Intelligent Systems and 19th International Symposium on Advanced Intelligent Systems in conjunction with Intelligent Systems Workshop 2018 (SCIS&ISIS2018), Toyama, Japan, Dec. 2018.
18. Do-Van Nguyen, Tung-Long Vuong, Hai-Dang Kieu, Linh Pham, **Thanh-Ha Le**. Vision Memory for Target Object Navigation using Deep Reinforcement Learning: An Emperical Study, IEEE International Conference on Systems, Man, and Cybernetic (IEEE SMC2018), Myazaki Japan, Oct. 2018.
19. Srivatsa Prativadibhayankaram, Luong Van Huynh, **Thanh Ha Le**, Andre Kaup, Compressive Online Robust Principal Component Analysis with Optical Flow for Video Foreground-Background Separation, in Proc of the 8th International Symposium on Information and Communication Technology (SoICT), Nha Trang, 2017.
20. Nguyen Minh Hoa, Vuong Tung Long, Nguyen Dinh Nam, Nguyen Do Van, Nguyen Thi Thuy, **Thanh Ha Le**, Moving Object Detection in Compressed Domain for High Resolution Videos, in Proc of the 8th International Symposium on Information and Communication Technology (SoICT), Nha Trang, 2017.

21. Viet Anh Nguyen, **Thanh Ha Le** and Thuy Thi Nguyen, "Single Camera Based Fall Detection Using Motion and Human Shape Features," The 7th International Symposium on Information and Communication Technology (SoICT 2016), Dec. 8-9, Ho Chi Minh city, Vietnam.
22. Minh Le Dinh, Long Vuong Tung, Xiem Hoang Van, Duong Dinh Trieu, Tung Pham Thanh, and **Ha Le Thanh**, "Improving 3DTV View Synthesis Using Motion Compensated Temporal Interpolation," The International Conference on Advanced Technologies for Communications (ATC 2016), October 12 – 14, 2016, Hanoi, Vietnam.
23. Nguyen Thi Huong Thao, Vu Huu Tien, Vu Van San, Hoang Van Xiem, **Thanh Ha Le**, and Dinh Trieu Duong, "Side information creation using adaptive block size for distributed video coding," The International Conference on Advanced Technologies for Communications (ATC 2016), October 12 – 14, 2016, Hanoi, Vietnam.
24. Xiem Hoang Van, Dinh Trieu Duong, and **Thanh Ha Le**, "Spatial-Temporal Feature Extraction based Adaptive Search Range for Effective Frame Rate Up-Conversion," The International Conference on Advanced Technologies for Communications (ATC 2016), October 12 – 14, 2016, Hanoi, Vietnam.
25. Tung Long Vuong, Dinh Minh Le, Thi Thuy Le, and **Thanh Ha Le**, "Pre-rendered subtitles removal in video sequences using text detection and inpainting", International Conference on Electronics, Information and Communication (ICEIC 2016), January 27-30, 2016, Danang, Vietnam.
26. **Thanh Ha Le**, Seongjo Lee, Seung-Won Jung, and Chee Sun Won, "Reduced Reference Quality Metric for Depth Images", Advanced Multimedia and Ubiquitous Engineering, Lecture Notes in Electrical Engineering, Volume 352, pp. 117-122, 2015.
27. Van Hoang Nguyen, Tien Dung Nguyen, Huy Hoang Truong, Nguyen Hoang Hoa Luong, **Thanh Ha Le**, "A Low Complexity Fusion Method for VNREDSat-1 Images," in Proc. of The First NAFOSTED Conf. on Information and Computer Science, pp. 485-496, Hanoi, 2014.
28. Thanh Nam Pham, Xuan Thanh Nguyen, Viet Hung Luu, Quang Hung Bui, **Thanh Ha Le**, "Region-of-Interest Tracking Method for Video Plus Depth Coding," in Proc. of ICEIC 2014, pp. 96-99, Kota Kinabalu, Malaysia, Jan., 2014.
29. Nguyen Le Tran, Thanh Cong Do, Ba Tung Nguyen, Viet Cuong Ta, **Thanh Ha Le**, "Contour Based Hand Gesture Recognition Using Depth Data," in Proc. of SIP 2013, pp. 60-64, Jeju, Korea, 2013.
30. Tien Dung Nguyen, Huu Hiep Hai Nguyen, **Thanh Ha Le**, "Trademark Image Retrieval Based on Scale, Rotation, Translation Invariant Features," in Proc. of RIVF 2013, pp. 282-285, Hanoi, Vietnam, Nov. 2013.
31. Thi Nhat Thanh Nguyen, Viet Cuong Ta, **Thanh Ha Le**, and S. Mantovani, "Particulate Matter concentration Estimation from satellite aerosol and meteorological parameters, data-driven approaches," in Proc. of KSE 2013, Hanoi, Vietnam, Oct. 2013.
32. Ngoc Tuan Nguyen, Thi Nhat Thanh Nguyen, **Thanh Ha Le**, "Text Recognition Method for Trademark Images," in Proc. of ICEIC 2013, pp.201-203, Bali, Indonesia, Jan. 30 Feb. 2, 2013.
33. **Thanh Ha Le**, Jae-Young Cho, Hyun-Ji Kim, and Sung-Jea Ko, "Illumination-Adaptive Color Reproduction Method for Daylight Condition," in Proc. of ICEIC 2013, pp.189-190, Bali, Indonesia, Jan. 30 Feb. 2, 2013.
34. **Thanh Ha Le**, Lei Lei, Dae-Hwan Kim, and Sung-Jea Ko, "A New Interpolation Method Based on Non-Local Similarity," in Proc. of ICEIC 2012, pp.162-163, Jeongseon, Korea, Feb. 1 Feb. 3, 2012.
35. **Thanh Ha Le**, S. W. Jung, T. D. Bui, T. D. Dinh, and S. J. Ko, "Motion Vector Refinement Algorithm for the High Definition Video Coding," in Proc. of CES-CUBE, Jeju, Dec., 2011.
36. T. H. N. Vu, Y. K. Lee, **Thanh Ha Le**, T. D. Bui, "Location-Based Information Disseminating System with Integration of Various Georeferenced Data", in Proc. of FITAT/DBMI 2011, pp. 69-74, Cheongju, Korea.
37. K. D. Nguyen, T. D. Bui, **Thanh Ha Le**, "Barcode Identification in Heavily Blurred Images", in Proc. of PReMI 2011, pp. 116-121, Moscow, Russia.
38. **Thanh Ha Le**, Sung-Ho Lee, Won-Jae Park, Jong-Woo Han, and Sung-Jea Ko, "Fast Face Detection Based on Skin Color Segmentation and Gradient-Based Cost-Function," in Proc. of ITC-CSCC, pp. 430-432, Gyeongju, Korea, Jun. 19 Jun. 22, 2011.
39. **Thanh Ha Le**, Hye-Soo Kim, Chun-Su Park, Seung-Won Jung, and Sung-Jea Ko, "Bitrate Reduction Using FMO for Video Streaming over Packet Networks," in Proc. of WCSET 2009, vol.37, pp.316-318, WCSET 2009, vol.37, pp.316-318,

40. Seung-Won Jung, Hye-Soo Kim, **Thanh Ha Le**, Seung-Jin Baek, and Sung-Jea Ko, "A Novel Deinterlacing Algorithm Based on Adaptive Polynomial Interpolation," in Proc. of WCSET 2009, vol.37, pp.301-303, WCSET 2009, vol.37, pp.316-318,
41. **Thanh Ha Le**, D. T. Duong, H.-S. Kim, M.-C. Hwang, and S.-J. Ko, "Error concealment using adaptive mode selection for video communication in multipath transport," in Proc. of IMQA2007, Chiba, Japan, Mar. 2007.
42. M.-C. Hwang, **Thanh Ha Le**, S.-K. Kim, and S.-J. Ko, "Real-Time Person Identification System for Intelligent Digital TV," in Proc. Of 2006 Digest of Technical Papers International Conference on Consumer Electronics, pp. 103-104, Las Vegas, NV, Jan. 2007.
43. **Thanh Ha Le**, D. T. Duong, H.-S. Kim, B.-D. Choi, and S.-J. Ko, "Error Concealment Using Adaptive Spatial Interpolation for H.264," in Proc. of ICCE 2006, Hanoi, Vietnam, Oct. 2006.
44. D. T. Duong, H.-S. Kim, **Thanh Ha Le**, J.-Y. Jeong, and S.-J. Ko, Adaptive GOP Bit Allocation to Provide Seamless Video Streaming in Vertical Handoff, PSIVT2006, Lecture Notes in Computer Science, vol. 4319, pp. 791-801, Dec. 2006.

Books

1. **Thanh Ha Le**. Image Processing. VNU Publishing house, 2015.
2. **Thanh Ha Le**. Eyetalk - The stories revived from the eyes. The Gioi Publishers, 2023.

PATENTS

Granted Patents

1. **Le Thanh Ha**, Kieu Hai Dang, Nguyen Minh Hoa, Nguyen Viet Anh, Ngo Thi Duyen, Nguyen The Hoang Anh, Nguyen Ba Hung, Vu Ngoc Quang. Synchronization method for Electroencephalogram (EEG), Eye-tracking (ET), and Video signals. National Office of Intellectual Property of Vietnam, 2022.
2. **Le Thanh Ha**, Bui The Duy, Ngo Thi Duyen, Nguyen Van Tung, Nguyen The Hoang Anh, Nguyen Minh Hoa. Method and system on-screen-keyboard-based input and voice synthesis. National Office of Intellectual Property of Vietnam, 2020.
3. **Le Thanh Ha**, Nguyen Thi Thuy, Tran Quoc Long, Nguyen Do Van, Nguyen Chi Thanh, Nguyen Viet Anh, Nguyen Cong Thanh. Fall detection apparatus from video streaming. National Office of Intellectual Property of Vietnam, 2017.

Registered Patents

1. **Le Thanh Ha**, Nguyen Minh Hoa, Nguyen Viet Anh, Kieu Hai Dang, Ngo Thi Duyen, Nguyen Ba Hung. Data processing method for Brain-computer interface. National Office of Intellectual Property of Vietnam, 2021.
2. **Le Thanh Ha**, Kieu Hai Dang, Nguyen Minh Hoa, Nguyen Viet Anh, Ngo Thi Duyen, Nguyen Ba Hung, Man Quoc Khanh. Method for processing data to adjust data inputting speed in Human-Computer Interface system controlled by eye gaze and electroencephalography data. USPTO 2023.
3. Ma Thi Chau, Truong Duc Toan, Ngo Thi Duyen, Nguyen The Hoang Anh, **Le Thanh Ha**. Phương pháp và hệ thống điều khiển thiết bị điện tử dựa trên dữ liệu và cảnh báo nguy hiểm thông minh bằng tín hiệu chuyển động mắt và tín hiệu điện não. Vietnam IP 2023.
4. **Le Thanh Ha**, Ngo Thi Duyen, Nguyen Thanh Bong. Interaction method using eye tracking data. USPTO 2023.
5. **Le Thanh Ha**, Ngo Thi Duyen, Nguyen Thanh Bong. Interaction method using eye tracking data. IP Vietnam 2023.

PROJECTS

Current projects

1. Affective Computing Models: from Facial Expression to Mind-Reading, funded by EC Horizon 2020, 2024-2027, Principle investigator at Vietnam side.
2. Eye tracking – Brain computer interface AI-based Vietnamese spelling system for severe motor disabilities, funded by VinIF, 2020-2023, Principle investigator.

3. AI-based application for 3D-model restoration of Vietnamese and Korean cultural heritage, 2021-2024, Principle investigator.

Past projects

1. Augmentative/Alternative communication system using electroencephalogram and eye tracking signals for severe motor disabilities, 2020-2023, Principle investigator.
2. Vision-based Recognition for Unmanned Systems with Deep Reinforcement Learning, funded by Air Force Office of Scientific Research, 2018-2019, Principle investigator.
3. Developing a Distributed video compressor/De-compressor DVC, and Optimizing the Performance of DVC Deployed in Wireless Visual Sensor Networks, Vietnam National University, Hanoi, Main investigator.
4. Multimedia application tools for intangible cultural heritage conservation, funded by Ministry of Science and Technology, 2016-2018, Main investigator.
5. High Dimensional Heterogeneous Data based Animation Techniques for Southeast Asian Intangible Cultural Heritage Digital Content (ANIAGE), funded by European Commission (Horizon 2020), Principle investigator at VNU side.
6. Video analysis and processing methods for surveillance cameras, funded by VP9 Company, 2016-2017.
7. Coding and communication of multiview video plus depth for 3D Television Systems, funded by National Foundation for Science Technology Development (Nafosted), 2013-2016, Principle investigator.
8. Image processing techniques for UAVs, funded by Tecapro Company, 2016, Principle investigator
9. Forest fire information system, funded by University of Engineering and Technology, Vietnam National University, Hanoi, 2014, Principle investigator.
10. Integration of WebGIS and multirate and multiresolution satellite image processing technologies for forest fire monitoring in Vietnam, funded by Vietnam National University, Hanoi, 2012-2014, Principle investigator.
11. Analytical methods of satellite image processing for air pollution estimation in Vietnam,” funded by Asia Research Center, Vietnam National University, Hanoi, 2013 - 2014, Principle investigator.
12. Recognition and Analysis of user context from multi-source data for Ambient Intelligent systems, funded by National Foundation for Science Technology Development (Nafosted), 2012-2013, Main investigator.
13. Coding efficiency enhancement for H.264/AVC, funded by University of Engineering and Technology, Vietnam National University, Hanoi, 2011, Principle investigator.

SUPERVISED STUDENTS

Ph.D students

- 2022: Nguyen Viet Nam, Nguyen Quynh Hoa
- 2019: Nguyen Minh Hoa
- 2017: Nguyen Thi Hong Nhung
- 2016: Pham Thanh Tung, Nguyen Hoang Anh