

SCI IF 2016 2015

1. Jie Yang, Byung Gook Lee, "Distributed Adaptive Tracking Control of Hidden Leader-Follower Multi-Agent Systems with Unknown Parameter", Mathematics, 12(7), 1013, 2024.
2. DI Kosasih, BG Lee, H Lim, "Multichannel One-Dimensional Data Augmentation with Generative Adversarial Network", Sensors 23 (18), 7693, Sep. 2023.
3. Seow Hui Saw, Byung-Gook Lee, Hong Tat Ewe, "Skeleton-Based 3D Femur Shape Analysis System Using Maximum-Minimum Centre Approach", IEEE Access, May 17, 2022.
4. Jiakang Ho, Byung-Gook Lee, Dae-Ki Kang, "Attack-less adversarial training for a robust adversarial defense", Applied Intelligence, 52(4), 4364-4381, March 2022.
5. DI Kosasih, BG Lee, H Lim, "Neural Network and Cloud Computing for Predicting ECG Waves from PPG Readings", Journal of Multimedia Information System 9(1), 11-20, March 2022.
6. Mohammed Abdulhakim Al-Absi, Ahmed Abdulhakim Al-Absi, Rui Fu, Ki-Hwan Kim, Young-Sil Lee, Byung-Gook Lee, Sang-Gon Lee and Hoon-Jae Lee, "Secure and Efficient High Throughput Medium Access Control for Vehicular Ad-Hoc Network", Sensors 21, 4935, 2021.
7. David Ishak Kosasih, Byung-Gook Lee, Hyotaek Lim, and Mohammed Atiquzzaman, "An Unsupervised Learning-Based Spatial Co-Location Detection System from Low-Power Consumption Sensor", Sensors 21, 4773, 2021.
8. Jiakang Ho, Byung-Gook Lee, Dae-Ki Kang, "Uni-image: Universal image construction for robust neural model", Neural Networks, Vol. 128, Pages 279-287, August 2020.
9. Yongri Piao, Luyan Xing, Miao Zhang, Byung Gook Lee, "Three-dimensional reconstruction of far and large objects using synthetic aperture integral imaging", Optics and Lasers in Engineering Vol. 88, 153-161, Jan 31, 2017 **2.769**
10. Seokmin Hong, Donghak Shin, Byung-Gook Lee, Adrián Dorado, Genaro Saavedra, Manuel Martínez-Corral, "Towards 3D Television Through Fusion of Kinect and Integral-Imaging Concepts", Journal of Display Technology, Vol. 11, Issue 11, pp. 894-899, Nov. 2015. **1.53 1551-319X**
11. Bumseok Ko, Byung-Gook Lee, Sukho Lee, "Neighboring Elemental Image Exemplar Based Inpainting for Computational Integral Imaging Reconstruction with Partial Occlusion", Journal of the Optical Society of Korea, Vol. 19, No. 4, pp. 390-396, August 2015. **0.827**
12. Byung-Gook Lee, Bumseok Ko, Sukho Lee, Donghak Shin, "Computational Integral Imaging Reconstruction of a Partially Occluded Three-Dimensional Object Using an Image Inpainting Technique", Journal of the Optical Society of Korea, Vol. 19, No. 3, pp. 248-254, June 2015. **0.827**
13. Taekyung Ryu, ByungGook Lee, Sukho Lee, "Mutual constraint using partial occlusion artifact removal for computational integral imaging reconstruction", Applied Optics, Vol. 54, No. 13, pp.4147-4153, May 2015. **1.65 1559-128X**
14. Seokmin Hong, Adrián Dorado, Genaro Saavedra, Manuel Martínez-Corral, Donghak Shin, Byung-Gook Lee. "Full-parallax 3D display from single-shot Kinect capture", Proc. SPIE 9495, Three-Dimensional Imaging, Visualization, and Display 2015, 94950E, May 22, 2015.
15. Hui-Shyong Yeo, Byung-Gook Lee, Hyotaek Lim, "Hand tracking and gesture recognition system for human-computer interaction using low-cost hardware", Multimedia Tools and Applications, Volume 74, Issue 8, pp 2687-2715, April 2015. **1.331**
16. Byung-Gook Lee, Seokmin Hong, Han Yuan Dong, Donghak Shin, "Full Parallax Integral 3D Display and Image Processing Techniques", Social Technologies, Vol. 4, Issue 2, pp. 285-291, Feb 2, 2015
17. Nam-Woo Kim, Seok-Min Hong, Hoon Jae Lee, Byung-Gook Lee, and Joon-Jae Lee, "3D Visualization of Partially Occluded Objects Using Axially Distributed Image Sensing With a Wide-Angle Lens", Journal of the Optical Society of Korea, Vol. 18, No. 5, pp. 517-522, October 2014. **1.022**

18. Jae-Young Jang, Donghak Shin, Byung-Gook Lee, Suk-Pyo Hong, and Eun-Soo Kim, "[3D Image Correlator using Computational Integral Imaging Reconstruction Based on Modified Convolution Property of Periodic Functions](#)", Journal of the Optical Society of Korea, Vol. 18, No. 4, pp. 388-394, August 2014. ERC **1.022**
19. Yongseok Oh, Donghak Shin, Byung-Gook Lee, Shin-Il Jeong, and Hee-Jin Choi, "[Resolution-enhanced integral imaging in focal mode with a time-multiplexed electrical mask array](#)", Optics Express, Vol. 22, Issue 15, pp. 17620-17629, July 2014. ERC **3.307 1094-4087**
20. Jae-Young Jang, Donghak Shin, Byung-Gook Lee, and Eun-Soo Kim, "[Multi-projection integral imaging by use of a convex mirror array](#)", Optics Letters, Vol. 39, Issue 10, pp. 2853-2856, May 2014. ERC **3.416 0146-9592**
21. Miao Zhang, Yongri Piao, Joon-Jae Lee, Donghak Shin, Byung-Gook Lee, "[Visualization of partially occluded 3D object using wedge prism-based axially distributed sensing](#)" Optics Communications Volume 313, Pages 204-209, February 2014. **1.588 0030-4018**
***corresponding**
22. Yongri Piao, Miao Zhang, Joon-Jae Lee, Donghak Shin, Byung-Gook Lee, "[Orthoscopic integral imaging display by use of the computational method based on lenslet model](#)", Optics and Lasers in Engineering, Volume 52, Pages 184-188, January 2014. **1.916**
23. Suk-Pyo Hong, Donghak Shin, Byung-Gook Lee, and Eun-Soo Kim, "[Depth extraction of 3D objects using axially distributed image sensing](#)", Optics Express, Vol. 20, Issue 21, pp. 23044-23052, 2012. **3.546**
24. Joon-Jae Lee, Byung-Gook Lee, and Hoon Yoo, "[Depth extraction of three-dimensional objects using block matching for slice images in synthetic aperture integral imaging](#)" Applied Optics, pp. 5624-5629, Oct. 2011. **1.689**
25. Joon-Jae Lee, Byung-Gook Lee, and Hoon Yoo, "[Image quality enhancement of computational integral imaging reconstruction for partially occluded objects using weighting mask on occlusion areas](#)", Applied Optics, Vol. 50 No 13, Pages 1889-1893, 1 May 2011. **1.689**
26. Ho-Hyun Kang, Byung-Gook Lee, and Eun-Soo Kim, "[Efficient compression of rearranged time-multiplexed elemental image arrays in MALT-based three-dimensional integral imaging](#)", Optics Communication, Vol. 284, Pages 3227-3233, 21 Feb 2011. **1.438**
***corresponding**
27. Byung-Gook Lee, L Liliana, Dong-Hak Shin, "[Enhanced computational integral imaging system for partially occluded 3D objects using occlusion removal technique and recursive PCA reconstruction](#)", Optics Communications, Volume 283, Issue 10, Pages 2084-2091, 15 May 2010. **1.438**
28. Youchun Tang, Kwan Pyo Ko, Byung-Gook Lee and Gang Joon Yoon, "General formula for the mask of $(2n+4)$ -point symmetric subdivision scheme", submitted, Journal of Computational and Applied Mathematics, 2010
29. Joon-Jae Lee, Dong-Hak Shin and Byung-Gook Lee, "[Simple correction method of distorted elemental images using surface markers on lenslet array for computational integral imaging reconstruction](#)", Optics Express, Vol. 17, No. 20, 28 September 2009.
30. Dong-Hak Shin, Byung-Gook Lee, and Eun-Soo Kim, "[Modified smart pixel mapping method for displaying orthoscopic 3D images in integral imaging](#)", Optics and Lasers in Engineering, Volume 47, pp. 1189-1194, July 2009.
31. Joobong Hyun, Dong-Choon Hwang, Dong-Hak Shin, Byung-Gook Lee, and Eun-Soo Kim, "[Curved projection integral imaging using an additional large-aperture convex lens for viewing angle improvement](#)", ETRI Journal, Vol. 31, No. 2, Pages 105-110, April 2009.
32. Tan-Chun Wei, Dong-Hak Shin, and Byung-Gook Lee, "[Resolution-enhanced reconstruction of 3D Object using depth-reversed elemental images for partially occluded Object recognition](#)", Journal of the Optical Society of Korea, Vol. 13, No. 1, Pages 139-145, March 2009.

33. Dong-Hak Shin, Chun-Wei Tan, Byung-Gook Lee, Joon-Jae Lee, and Eun-Soo Kim, "[Resolution-enhanced three-dimensional image reconstruction by use of smart pixel mapping in computational integral imaging](#)", *Applied Optics*, Vol. 47, Issue 35, pp. 6656-6665, Dec. 2008.
34. Teresa Liew Bao Yng, Byung-Gook Lee and Hoon Yoo, "[A Low Complexity and Lossless Frame Memory Compression for Display Devices](#)", *IEEE Transactions on Consumer Electronics*, Vol. 54, No. 3, Pages 1453-1458, Aug. 2008.
35. Dong-Hak Shin, Byung-Gook Lee and Joon-Jae Lee, "[Occlusion removal method of partially occluded 3D object using sub-image block matching in computational integral imaging](#)", *Optics Express*, Vol. 16, Issue 21, pp. 16294-16304, Oct. 2008.
36. Dong-Hak Shin, Hoon Yoo, Chun-Wei Tan, Byung-Gook Lee and Joon-Jae Lee, "[Occlusion removal technique for improved recognition of partially occluded 3D objects in computational integral imaging](#)", *Optics Communications*, Vol 281, pp.4589-4597, July, 2008
37. Abedallah Rababah, Byung-Gook Lee and Jaechil Yoo, "[Multiple degree reduction and elevation of Bezier curves using Jacobi-Bernstein basis transformations](#)", *Numerical Functional Analysis and Optimization*, Vol 28(9-10), pp.1179-1196, October, 2007
38. Kwan Pyo Ko, Byung-Gook Lee and Gang Joon Yoon, "[A ternary four-point approximating subdivision scheme](#)", *Applied Mathematics and Computation* Vol. 190, Issue 2, 15 July 2007, pp.1563~1573.
39. Kwan Pyo Ko, Byung-Gook Lee and Gang Joon Yoon, "[A study on the mask of interpolatory symmetric subdivision schemes](#)", *Applied Mathematics and Computation*, Vol. 187, Issue 2, 15 April 2007, pp.609~621.
40. Abedallah Rababah, Byung-Gook Lee and Jaechil Yoo, "[A simple matrix form for degree reduction of Bezier curves using Chebyshev-Bernstein basis transformations](#)", *Applied Mathematics and Computation*, Vol. 181, Issue 1, 1 October 2006, pp.310-318.
41. Byung-Gook Lee, Yeon Ju Lee and Jungho Yoon, "[Stationary binary subdivision scheme by radial basis function interpolation](#)", *Advances in Computational Mathematics*, ISSN 1019-7168, Vol 25/1-3 pp.57-72, July 2006.
42. Sung Woo Choi, Byung-Gook Lee, Yeon Ju Lee and Jungho Yoon, "[Stationary Subdivision Schemes Reproducing Polynomials](#)", *Computer Aided Geometric Design*, Vol 23/4 pp.351-360, 2006.
43. Youchun Tang, Kwan Pyo Ko and Byung-Gook Lee, "[A new proof of the smoothness of 4-point Deslauriers-Dubuc scheme](#)", *Journal of Applied Mathematics and Computing*, Vol.18, No 1-2, pp.553-562, 2005.
44. Young Joon Ahn, Byung-Gook Lee, Yunbeom Park and Jaechil Yoo, "[Constrained polynomial degree reduction in the L2-norm equals best weighted Euclidean approximation of Bezier coefficients](#)", *Computer Aided Geometric Design*, Vol 21/2, pp.181-191, 2004.
45. Byung-Gook Lee, Yunbeom Park and Jaechil Yoo, "[Application of Legendre-Bernstein basis transformations to degree elevation and degree reduction](#)", *Computer Aided Geometric Design*, Vol 19/9, pp.709-718, 2002.
46. Byung-Gook Lee and YunBeom Park, "[The Distance for Bezier Curves and Degree reduction](#)", *Bulletin of the Australian Mathematical Society* Vol. 56 (1997) pp. 507-515.
47. Byung Gook Lee and Byung Chun Kim, *An Efficient Algorithm for The Nonparametric Regression Estimation*. Japanese Society of Computational Statistics, Vol. 5(1992), No 1.
48. Byung Gook Lee and Byung Chun Kim, *An Efficient Algorithm for The Least- Squares Cross-Validation with Symmetric and Polynomial Kernels*. Communications in Statistics.-Simulation and Computation, Vol.19(1990), No 4.

KCI SCOPUS

1. Niringiye Godfrey, HoonJae Lee, ByungGook Lee, [Ransomware Detection Using Deep Q-Network and L2PGD Attack Analysis on a Custom Dataset](#), Smart Media Journal, Vol.14 No.2, 19-25, 2025. 8
2. Zi Jie Qin, HoonJae Lee, Byung Gook Lee, [Research study on enhancing safety training on marine rescue platforms through the application of Virtual and Augmented Reality technologies](#), International Journal of Advanced Smart Convergence(IJASC) Vol.14 No.2 242-251, 2025. 5
3. Jinquan Ju, Hoon Jae Lee, ByungGook Lee, [Adversarial sample poisoning and security enhancement strategies for deep neural network face recognition systems](#), International Journal of Internet, Broadcasting and Communication Vol.17 No.2 198 - 209, 2025. 3
4. Niringiye Godfrey, Bruce Ndibanje, HoonJae Lee, ByungGook Lee, [Integrating ISO/IEC Standards for Robust AI Security and Resilience Against Adversarial Attacks](#), International Journal of Advanced Smart Convergence, Vol.14 No.1, 85-100, 2025. 3
5. JB Lee, H Lee, BR Lee, BG Lee, WH Son, [EgoCoord: Self-calibrated Egocentric 3D Body Pose Estimation Using Pixel-Wise Coordinate Encoding](#), Proceedings of the Asian Conference on Computer Vision, 1233-1249, 2024. 12
6. Byunggook Lee, Ulziichimeg Ulziisaikhan, Hyotaek Lim, Wansuk Choi, "[Behavioral Analysis-Based Labeling for Physical Exercise Posture Image Dataset using National Artificial Intelligence Computing Platform](#)", Journal of International Academy of Physical Therapy Research Vol.15 No.4 pp.3320-3337, 2024. 11
7. Byunggook Lee, Ulziichimeg Ulziisaikhan, Hyotaek Lim, Wansuk Choi, "[A Study on the Development of a Deep Learning Model for Fitness Posture Behavior Analysis using FNN and Stacked LSTM](#)", Journal of International Academy of Physical Therapy Research Vol.15 No.4 pp.3388-3400, 2024. 11
8. J. Yang, Z. Qin, H. Lim and B. G. Lee, "[Short-term power load forecasting of a city in Henan Province using Attention based LTSM](#)", 2024 6th Asia Energy and Electrical Engineering Symposium (AEEES), Chengdu, China, pp. 1186-1192, 2024. 3
9. Zhou Qiang, Lee Byung Gook, "[Optical motion capture application based on UnityD and MediaPipe](#)", 2024 3rd International Conference on Cloud Computing, Big Data Application and Software Engineering, CBASE 2024, Pages 618-623, 2024. 10
10. Hyun-woo Jin, Dong-oh Kang, Byung-gook Lee, "[DiSAIn-VTON: Diffusion-based Similar Apparel Inpainting Virtual Try-on Networ](#)", KIISE Transactions on Computing Practices, Vol. 30, No. 3, pp. 149-154, 2024. 3
11. DI Kosasih, BG Lee, H Lim, "[Neural Network and Cloud Computing for Predicting ECG Waves from PPG Readings](#)", Journal of Multimedia Information System 9(1), 11-20, March 2022.
12. Zi Jie Qin, Ao Xuan Li, Hyotaek Lim, Byung Gook Lee, " [Mixed reality multi-person interaction research based on the calibration of the HoloLens devices](#)", Journal of Korea Multimedia Society, Vol. 24, No. 9., 1261-1267, Sep. 2021.
13. Sung Boo Park, Seong Yun Shin, Kwang Hyo Jung, Byung Gook Lee, " [Prediction of Significant Wave Height in Korea Strait Using Machine Learning](#)", Journal of Ocean Engineering and Technology, 35(5), 336-346, Sep. 2021.
14. Chen Yuan Hu, Byung Jin An, Byoung Gook Lee " [A Study on the Interaction Elements and Emotional Design of Art Museum Applications: Focusing on Application Art Keys](#)", Journal of Korea Multimedia Society, Vol. 24, No. 5, 727-735, May 2021.
15. Tolendiyev Gabit, Lim Hyotaek, Lee Byung-Gook, " [A Margin-based Face Liveness Detection with Behavioral Confirmation](#)", The International Journal of Internet, Broadcasting and Communication, Vol. 13, Issue 2, pp.187-194, 2021.
16. I J Jung, E J Choi, B G Lee, J W Kim, " [Population-based, three-dimensional analysis of age- and sex-related femur shaft geometry differences](#)", Osteoporosis International, Jan 26, 2021.

17. Gabit Tolendiyev, Mohammed Abdulhakim Al-Absi, Hyotaek Lim, Byung-Gook Lee, "[Adaptive Margin Based Liveness Detection for Face Recognition](#)", IHCI 2020: Intelligent Human Computer Interaction, pp. 267-277, 2020.
18. Yustus Eko Oktian, Sang-Gon Lee and Byung-Gook Lee, "[Blockchain-Based Continued Integrity Service for IoT Big Data Management: A Comprehensive Design](#)", Electronics, Vol. 9, Issue 9, 1434, Sep 3, 2020.
19. Liliana Liliana, Ji-Hun Chae, Joon-Jae Lee, Byung-Gook Lee, "[A robust method for VR-based hand gesture recognition using density-based CNN](#)", TELKOMNIKA Telecommunication, Computing, Electronics and Control, Vol. 18, No. 2, pp. 761~769, April 2020.
20. Saw Seow Hui, Ewe Hong Tat, Ji Wan Kim, and Byung Gook Lee, "[3D Femur Skeletonization using Maximum-Minimum Centre Approach](#)", SIAM Conference on Computational Geometric Design (GD19) June 17 - 19, 2019, Simon Fraser University Downtown Campus, Vancouver, British Columbia, Canada
21. Edwin Kurniawan, Byung Gook Lee, Suk Ho Lee, "[An Implementation of a Cloud Service based Augmented Reality for Improved Interactivity](#)", Indian Journal of Science and Technology, Volume 9, Issue 46, December 2016
22. Han Yuan Dong, Lee Ming Xiang and Byung Gook Lee, "[Air-touch interaction system for integral imaging 3D display](#)", Proc. SPIE 10011, First International Workshop on Pattern Recognition, July 11, 2016
23. Nian Zi Xuan, Goh Wen Shyan, Zeng Rong, Lee Byung Gook, "[Transforming Traditional Performance into New Media Audio Live Performances with Processing](#)", 2016 International Symposium on Computer, Consumer and Control (IS3C), July 4-6, 2016
24. Seokmin Hong, Donghak Shin, Byung-Gook Lee, Adrián Dorado, Genaro Saavedra, Manuel Martínez-Corral, "[Towards 3D Television Through Fusion of Kinect and Integral-Imaging Concepts](#)", Journal of Display Technology, Vol. 11, Issue 11, pp. 894-899, Nov. 2015
25. Seokmin Hong, Adrián Dorado, Genaro Saavedra, Manuel Martínez-Corral, Donghak Shin, Byung-Gook Lee. "[Full-parallax 3D display from single-shot Kinect capture](#)", Proc. SPIE 9495, Three-Dimensional Imaging, Visualization, and Display 2015, 94950E, May 22, 2015
26. Byung-Gook Lee, Seokmin Hong, Han Yuan Dong, Donghak Shin, "[Full Parallax Integral 3D Display and Image Processing Techniques](#)", Social Technologies, Vol. 4, Issue 2, pp. 285-291, Feb 2, 2015
27. Yongseok Oh, Donghak Shin, Byung-Gook Lee, Shin-Il Jeong, "[Three-dimensional/two-dimensional convertible integral imaging display system using an active mask](#)", J. Korea Inst. Inf. Commun. Eng., Vol. 18, No. 12, pp. 3055-3062, Dec. 2014.
28. Seokmin Hong, Donghak Shin, Joon-Jae Lee, Byung-Gook Lee, "[Viewing angle-improved 3D integral imaging display with eye tracking sensor](#)", Journal of Information and Communication Convergence Engineering, Vol. 12, No. 4, pp. 208-214, Dec. 2014.
29. Donghak Shin, Joon-Jae Lee and Byung-Gook Lee, "[Recognition of a scattering 3D object using axially distributed image sensing technique](#)", ARPN Journal of Engineering and Applied Sciences, Vol. 9, No. 11, pp. 2085-2088, Nov. 2014.
30. Byung-Gook Lee, Seokmin Hong, Han Yuan Dong, Donghak Shin, "[Full parallax integral 3d display and image processing techniques](#)", Socialines Technologijos, Vol. 4, Issue 2, pp. 285-291, July 2014.
31. Xiang-Dan Huang, Byung-Gook Lee, Hyung-Woo Kim, and Joon-Jae Lee, "[An Experience-Based Chinese Opera Using Live Video Mapping](#)", Human-Computer Interaction, Part II, HCII 2014, LNCS 8526, pp. 178-189, June 2014.
32. Yung Fu Tan, Mangal Sain, Lee Byung Gook, "[User Detection in Real-time Panoramic View through Image Synchronization using Multiple Camera in Cloud](#)", Advanced Communication Technology (ICACT), 2014 16th International Conference on Page(s): 1118 - 1123, 16-19 Feb. 2014.

33. Jae-Young Jang, Young-Il Kim, Donghak Shin, Byung-Gook Lee, and Joon-Jae Lee, "[Defocusing image generation corresponding to focusing plane by using spatial information of 3D objects](#)", [The Korean Institute of Information and Commucation Engineering](#), Vol. 17, No 4, pp. 981-995, April 2013.
34. Joon-Jae Lee, Donghak Shin, and Byung-Gook Lee, "[Improved recognition of 3D objects using nonlinear correlator based on direct pixel mapping in curving-effective integral imaging](#)", [The Korean Institute of Information and Commucation Engineering](#), Vol. 17, No 1, pp. 190-196, Jan. 2013.
35. Joon-Jae Lee, Donghak Shin, Byung-Gook Lee, Hoon Yoo, "[3D optical microscopy method based on synthetic aperture integral imaging](#)" [3D Research](#), Vol. 3, Issue 4, pp. 1-6, December 2012.
36. Joon-Jae Lee, Kwang-Ho Lee, Chang-Do Chung, Kil-Houm Park, Yun-Beom Park, and Byung-Gook Lee, "[Pattern Elimination Method Based on Perspective Transform for Defect Detection of TFT-LCD](#)", [Journal of Korea Multimedia Society](#), Vol. 15, No 6, pp. 784-793, June 2012.
37. ChunHa Ryu, Tae-Hun Kim, Byung-Gook Lee, Byung-Jae Choi and Kil-Houm Park, "[ECG signal compression based on B-spline approximation](#)", [Journal of Fuzzy Logic and Intelligent Systems](#)([한국지능시스템학회 논문지](#)), Vol. 21, No 5, pp. 653-659, Oct. 2011.
38. Joon-Jae Lee and Byung-Gook Lee, "[Wafer Position Recognition System Using Radial Shape Calibrator](#)", [Journal of Korea Multimedia Society](#), Vol. 14, No 5, pp. 632-641, May 2011.
39. Joon-Jae Lee, Nam-Seok Choi and Byung-Gook Lee, "[Point Pattern Matching Algorithm Using Unit-Circle Parametrization](#)", [Journal of Korea Multimedia Society](#), Vol. 13 No. 6, Pages 825-832, June 2010.
40. Jung Woo Lee, Byung-Gook Lee and Joon-Jae Lee, "[Wafer Position Recognition System of Cleaning Equipment](#)", [Journal of Korea Multimedia Society](#), Vol. 13 No. 3, Pages 400-409, March 2010.
41. N.-W. Kim, D.-J. Kim, D.-H. Shin, B.-G. Lee, E.-S. Kim, "[Vision-Based 3D Fingertip Interface for Spatial Interaction in 3D Integral Imaging System](#)" [IEEE CS conference, International Conference on Complex, Intelligent and Software Intensive Systems\(CISIS 2009\)](#), Fukuoka Institute of Technology, Japan, March 16-19 2009.
42. Suk-ho Lee, Nam-seok Choi, Byung Gook Lee, "[Simultaneous Background/Foreground Segmentation and Contour Smoothing with Level Set based Partial Differential Equation for Intelligent Surveillance Systems over Network](#)" [IEEE CS conference, International Conference on Complex, Intelligent and Software Intensive Systems\(CISIS 2009\)](#), Fukuoka Institute of Technology, Japan, March 16-19 2009.
43. Nam-Woo Kim, Seung-Jae Lee, Joon-Jae Lee, Byung-Gook Lee, "[Laser Pointer Interaction System Based on Image Processing](#)", [Journal of Korea Multimedia Society](#), Vol. 11, No. 3, Pages 373-385, March 2008.
44. Du Cheol Gang, Seung Il Han, Joon Jae Lee and Byung-Gook Lee, "[Keypad Inspection System of Cellular Phone](#)", [Computer Grapgics, Imaging and Visualisation 2007](#), [IEEE Computer Society](#), pp. 93-96, 2007.
45. Nam Woo Kim, Seung Jae Lee, Joon Jae Lee and Byung-Gook Lee, "[Vision Based Laser Pointer Interaction for Flexible Screens](#)", [Human-Computer Interaction, Part II, HCI International 2007](#), LNCS 4551, pp. 845-853, 2007.
46. Joon Jae Lee, Byung-Gook Lee and Chul Hyun Park, "[Directional Filter Bank-Based Fingerprint Image Enhancement using Ridge Curvature Classification](#)", [Journal of the Korea Society for Industrial and Applied Mathematics](#), Vol. 11(2007), No. 2, pp.49-57.
47. Jeong-hoe Koo, Yoo Jaechil and Byung-Gook Lee, "[On the \$3^k\$ -magic squares](#)", [Journal of the Korea Society for Industrial and Applied Mathematics IT series](#), Vol. 10(2006), No. 1, pp.11-19.

48. Joon Jae Lee, Byung-Gook Lee and Jaechil Yoo, "[3-D Solder Paste Inspection Based on B-spline Surface Approximation](#)", Journal of the Korea Society for Industrial and Applied Mathematics IT series, Vol. 10(2006), No. 1, pp.31-45.
49. Sang Ji Kim, Yeon Ju Lee, Jeongho Yoon, Hun Yoo, Byung Gook Lee, Joon Jae Lee, "[Defect Detection of Flat Panel Display Using Wavelet Transform](#)", Journal of the Korea Society for Industrial and Applied Mathematics IT series, Vol. 10(2006), No. 1, pp.47-60.
50. Seung Il Han, Yong Hyun Hwang, Byung Gook Lee, Joon Jae Lee, "[A study on pointing device system using stereo vision](#)", Journal of the Korea Society for Industrial and Applied Mathematics IT series, Vol. 10(2006), No. 2, pp.67-80.
51. Y.-J. Choi, Y.-J. Lee, J. Yoon, B.-G. Lee, Y.-J. Kim, "[A New Class of Non-stationary Interpolatory Subdivision Schemes based on Exponential Polynomials](#)", [SpringerLink](#), [Geometric Modeling and Processing - GMP 2006](#): 4th International Conference, Pittsburgh, PA, USA, July 26-28, 2006. Proceedings, Lecture Notes in Computer Science, ISSN 0302-9743, ISBN 3-540-36711-X, Vol. 4077, pp.563-570.
52. Chul-Hyun Park, Joon-Jae Lee and Byung-Gook Lee, "[Fingerprint Image Enhancement Using the Directional Filter Bank and Oriented Anisotropic Gaussian Filters](#)", [2005 International Conference on Computational Intelligence and Security\(ICS2005\)](#), December 15-19, 2005 Xian, China
53. Soon-Jeong Ahn, Jaechil Yoo, Byung-Gook Lee and Joon-Jae Lee, "[3D surface reconstruction from scattered data using moving least square method](#)", [SpringerLink](#), [13th International Conference on Image Analysis and Processing\(ICIAP2005\)](#), September 6-8, 2005 Cagliari, Italy
54. Byung-Gook Lee, Joon-Jae Lee and Jaechil Yoo, "[An Efficient Scattered Data Approximation Using Multilevel B-splines Based on Quasi-Interpolants](#)", [IEEEExplore The 5th International Conference on 3-D Digital Imaging and Modeling\(3DIM2005\)](#), June 13-16, 2005 Ottawa, Ontario, Canada
55. Byung-Gook Lee, Joon-Jae Lee and Ki-Ryoung Kwon, "[Quasi-interpolants Based Multilevel B-Spline Surface Reconstruction from Scattered Data](#)", [SpringerLink](#), [Computational Science and Its Applications - ICCSA2005](#), International Conference Singapore, May 2005 Proceedings, Part III, p.1209~1218.
56. Kim Hoi Sub, Lee Joon Jae, Lee Byung-Gook and Yoo Jaechil, "Coplanarity Inspection Algorithm from 3-D Height Data of PCB", Journal of the Korea Society for Industrial and Applied Mathematics IT series, Vol. 8(2004), No. 2, pp.1-12.
57. Byung-Gook Lee, Abedallah Rababah and Jaechil Yoo, "[Multiple degree reduction and elevation of Bezier curves using Jacobi-Bernstein basis transformations\(fig\)](#)", [SIAM Conference on Geometric Design and Computing](#), Seattle, Washington, Nov. 10-13, 2003
58. Young Joon Ahn, Byung-Gook Lee, Yunbeom Park and Jaechil Yoo, "[Constrained polynomial degree reduction in the L2-norm equals best weighted Euclidean approximation of Bezier coefficients](#)", [SIAM Conference on Geometric Design and Computing](#), Seattle, Washington, Nov. 10-13, 2003
59. Byung-Gook Lee, Yunbeom Park and Jaechil Yoo, "[Legendre-Bernstein basis transformations and their applications](#)", [The Fifth International Conference on Curves and Surfaces](#), Saint Malo, France, June 27 - July 3, 2002.
60. Byung-Gook Lee and YunBeom Park, "[Degree Elevation of NURBS Curves by Weighted Blossom](#)", The Korean Journal of Computational and Applied Mathematics, Vol.9(2002) N0.1, pp.151~166.
61. Byung-Gook Lee and YunBeom Park, "[Degree Reduction of B-spline Curves](#)", The Korean Journal of Computational and Applied Mathematics, Vol.8(2001) No.3, pp.595~604.

62. Byung-Gook Lee, Tom Lyche and Knut Morken, "[Some Examples of Quasi-Interpolants Constructed from Local Spline Projectors](#)", [Mathematical Methods for Curves and Surfaces Oslo 2000](#), T. Lyche, and L.L. Schumaker, (eds.), Vanderbilt Press, Nashville, pp. 243-252, 2001.
63. Byung-Gook Lee and YunBeom Park, "[Degree Elevation of B-spline Curves and Its Matrix Form](#)", Journal of the Korea Society for Industrial and Applied Mathematics, Vol. 4(2000), No. 2, pp.1-10.
64. Byung-Gook Lee, "[A Cubic Quasi-Interpolant\(fig\)](#)", [The Fifth International Conference on Mathematical Methods for Curves and Surfaces](#), Oslo, Norway, June 29 - July 4, 2000.
65. Byung-Gook Lee and YunBeom Park, "[Approximate Conversion of Rational Bezier Curves](#)", Journal of the Korea Society for Industrial and Applied Mathematics Vol. 2(1998), No.1, pp. 89-94.
66. Byung-Gook Lee, Kwan-Pyo Ko and YunBeom Park, "[The Degree Elevation and L2 distance for the Rational Bezier curves](#)", Dongseo University Theses Collection, Vol. 3(1997) pp. 75-79.
67. Byung-Gook Lee and YunBeom Park, "The L2 norm of Bezier curves", Korean J. Com. & Appl. Math. Vol. 3(1996), No. 2, pp. 245-252
68. Byung-Gook Lee, Woan-Kyu Lee and YunBeom Park, "An Efficient Representation of Combination Rule for the Hangeul Typeface Design", The Transactions of The Korea Information Processing Society, Vol. 3(1996), No 6, pp. 1580-1587
69. Kwan-Pyo Ko and Byung-Gook Lee, "The Mean-Square Estimation for the Kernel of the Remainder Term of Gaussian Quadrature", Dongseo University Theses Collection, Vol. 2(1996) pp. 67-71.

국제등록

1. Attack-Less Adversarial Training for Robust Adversarial Defence, 2020.02.06, US 16783736
2. [DEPTH-PRIORITY INTEGRAL IMAGING DISPLAY METHOD USING NONUNIFORM DYNAMIC MASK ARRAY](#), 20171219, 미국 US9846309, 동서대 신동학,오용석,이병국
3. [Method for displaying three-dimensional integral images using mask and time division](#), 20160809, 미국, US9414050, 동서대 신동학,오용석,이병국
4. [마스크 패널이 사용된 집적영상에서 3차원 및 2차원 영상으로 전환가능한 디스플레이 시스템을 구현하는 방법](#), 20160707, PCT, WO2016108339, 동서대 신동학,오용석,이병국
5. [멀티 프로젝션형 집적영상방법](#), 20151022, PCT, WO2015160012, 동서대/광운대 신동학,이병국,김은수,장재영
6. [렌즈어레이를 이용한 테이블탑형 3차원 디스플레이 시스템](#), 20150813, PCT, WO2015119330, 동서대/광운대 신동학,이병국,김은수,구정식
7. [집적 영상시스템의 초다시점 3차원 디스플레이 시스템 및 3차원 영상 표시깊이변환방법](#), 20150813, PCT, WO2015119331, 동서대/광운대 신동학,이병국,김은수
8. [스테레오 집적 영상 디스플레이 시스템](#), 20150205, PCT, WO2015016476, , 동서대, 아이리얼, 신동학, 오용석, 황용현, 이병국, 강래원
9. Three dimensional integral imaging display-using mask and time-multiplexing, 20130427, 중국, 201310150779, 동서대 신동학,오용석,이병국

국내등록

1. AES가 탑재된 AVR장비의 소비패턴 분석을 통한 MLP 기반의 AES 복호화 방법, 2023.02.24 10-2505081, 동서대, 이훈재, 김기환, 이상곤, 이병국
2. 사용자 인증 시스템에서 여백을 포함한 얼굴영역 이미지를 이용한 라이브니스 검사방법, 2021.10.21, 10-2318051, 동서대, 이병국, 임효택, 가빃
3. 비공개 데이터셋의 데이터 무결성 보장을 위한 블록체인 솔루션 제공 시스템, 그리고 이의 처리 방법, 2020.11.20, 10-2183582, 동서대 이상곤, 옥티엔 유스투스 에코, 이병국

4. 서보모터의 전력 소모량을 이용한 이상 행위 탐지장치 및 방법, 2020.09.11, 10-2157031, 동서대 김기환, 류수미, 김민규, 김현호, 강영진, 이훈재, 이진홍, 이상곤, 이병국
5. 일괄트레이닝 처리의 데이터 무결성 보장을 위한 블록체인 솔루션 제공 시스템, 그리고 이의 처리 방법, 2020.04.24, 10-2106602, 동서대 이상곤, 옥티엔 유스투스 에코, 이병국
6. [비균일 동적 마스크어레이를 이용한 깊이우선 집적영상 디스플레이방법](#), 2016.12.22, KR101690866, 동서대, 오용석, 신동학, 이병국
7. [대각선으로 분할된 동적 마스크어레이를 이용한 깊이우선 집적영상 디스플레이방법](#), 2016.12.28, KR101690868, 동서대, 오용석, 신동학, 이병국
8. [관측자의 위치를 고려한 집적영상 디스플레이 시스템의 영상 제공 방법](#), 20160627, KR101634014, 동서대, 오용석, 신동학, 이병국
9. [마스크 패널이 사용된 집적영상에서 3차원 및 2차원 영상으로 전환가능한 디스플레이 시스템을 구현하는 방법](#), 20160621, KR101634013, 동서대, 오용석, 신동학, 이병국
10. [마스크 패널을 이용한 집적영상 디스플레이 시스템에서의 시야각 증가방법](#), 20160420, KR101615828, 동서대, 오용석, 신동학, 이병국
11. [집적 영상시스템의 3차원 영상 표시깊이변환방법](#), 20160309, KR101600681, 광운대 동서대, 신동학, 황용현, 이병국, 최재관, 구정식, 김은수
12. [관찰자의 위치정보를 컴퓨터 가상공간에 맵핑하는 방법](#), 20160205, KR101592002, 동서대, 홍석민, 황용현, 신동학, 이병국
13. [컴퓨터 그래픽스 기반의 스테레오 플로팅 집적 영상생성시스템](#), 20151109, KR101567002, 동서대, 아이리얼, 황용현, 신동학, 이병국, 강래원
14. [렌즈어레이를 이용한 테이블탑형 3차원 디스플레이 시스템](#), 20150921, KR101555974, 동서대/광운대 신동학, 이병국, 김은수, 구정식
15. [깊이우선 집적영상 디스플레이에서의 색 분리 현상 감소 방법](#), 20150420, 10-1515036, 동서대 오용석, 신동학, 이병국
16. [스테레오 집적 영상 디스플레이 시스템](#), 20150309, 10-1502407, 동서대, 아이리얼, 신동학, 오용석, 황용현, 이병국, 강래원
17. 3차원 영상 획득 및 시각화 방법, 20141210, 10-1473436, 동서대 신동학, 이병국
18. 3차원 영상의 겹침 현상을 제거하는 방법, 20141117, 국내 10-1464426, 동서대 신동학, 이병국
19. 시분할 디스플레이방식이 적용된 3차원 영상의 겹침 현상을 제거하는 방법, 20140729, 10-1426457, 동서대 신동학, 오용석, 이병국, 강래원
20. 3차원 집적 영상디스플레이의 깊이조절시스템, 20130731, 10-1293576, 동서대 신동학, 이병국
21. 마스크와 시간다중화 방식을 이용한 3차원 집적 영상 표시방법, 20130731, 10-1294261, 동서대 신동학, 오용석, 이병국

국내출원

1. 수직 다시점 영상 획득 장비를 활용한 인공지능 기반 중간 영상 생성 시스템, 10-2024-0177725, 동서대 이병국, 한재승, 김경현
2. 견고한 적대적 방어를 위한 공격 기술에 독립적인 적대적훈련, 2019.12.24, 10-2019 -0174038
3. 3D 모니터를 갖는 멀티 디스플레이 발권기, 20150422, 10-2015-0056795 동서대/씨케이그룹 이정우, 연창훈, 오용석, 황용현, 이병국
4. [관측자의 위치를 고려한 집적영상 디스플레이 시스템의 영상 제공 방법](#), 20141231, 10-2014-0195124, 동서대 신동학, 오용석, 이병국
5. 실시간 집적 영상 생성 방법, 20141223, 10-2014-0187598, 동서대 황용현, 이병국
6. [시분할 디스플레이방식이 적용된 3차원 영상의 겹침 현상을 제거하는 방법](#), 20140729, 10-1426457, 동서대, 신동학, 오용석, 이병국, 강래원
7. 멀티 프로젝션형 집적영상방법, 20140416, 10-2014-0045531, 동서대/광운대 신동학, 이병국, 김은수, 장재영

8. 집적 영상시스템의 3차원 영상 표시깊이변환방법, 20140416, 10-2014-0045523, 동서대/광운대
신동학,황용현,이병국,김은수,구정식,최재관
9. 3차원 영상 획득 및 제공방법, 20140226, 10-2014-0022315, 아이리얼/에핀/동서대
김남우,이승재,김동진,강래원,이병국,신동학
10. 초다시점 3차원 디스플레이 시스템, 20140204, 10-2014-0012571, 동서대/광운대
신동학,이병국,김은수

2020.03~2025.02	한국연구재단	중견연구	Secure Healthcare-Cloud Framework for AI-based Resource Management, AI 기반의 자원 관리를 위한 안전한 헬스케어-클라우드 프레임워크
2021.04~2022.12		2021년도 스포츠산업혁신 기반조성(R&D) 사업	실내 스포츠 이용자 안전을 위한 스마트체육시설 기술개발 Development of smart sports facility technology for the safety of indoor sports users - 다중 카메라 영상 기반 실내 스포츠 이용자 행동 패턴 인식 SW 개발
2018.04~2020.12	정보통신기술 진흥센터 IITP	정보보호핵심원 천기술개발사업	Development of prevention technology against AI dysfunction induced by deception attack 기만공격에 의한 AI 역기능 방지 기술 개발
2014.09~2018.08	한국연구재단	ERC	
2013.06~2014.05	중소기업청	산학연공동 기술개발사업	차량용 유.무선 통합 게이트웨이 모듈 개발
2012.06~2015.05	정보통신기술 진흥센터 IITP	정보통신핵심원 천기술개발사업	Development of high-definition 3D image processing technologies using advanced integral imaging with improved depth range 집적영상(IP) 깊이 표현 범위를 개선한 고선명 3D 영상 처리 기술 800,000,000KRW*3years
2010.06~2012.05	중소기업청	산학연협력 기업부설연구소 설치 지원사업	2D영상의 3D입체영상 변환에 최적화된 멀티레이어 생성 및 보정 솔루션개발
2010.05~2013.04	교육과학기술부	일반연구자 지원사업	Clear Vision을 위한 디지털 영상 처리 및 생성 54,000,000KRW*3years
2009.06~2010.05	중소기업청	산학연공동 기술개발사업	Super Resolution을 이용한 웨이퍼 위치 초정밀 인식 비전 시스템 개발
2008.06~2011.05	중소기업청	산학연협력 기업부설연구소 설치 지원사업	CMOS센서를 이용한 영상처리기반의 상호 작용 기술 개발
2006.05~2009.04	한국산업 기술재단	지역혁신 인력양성사업	유비쿼터스 스마트 공간 개발을 위한 멀티유저 인터랙션 기술 개발
2006.03~2013.02	한국과학재단	2nd BK21	Advanced Technology for Digital Contents Production 200,000,000KRW*7years
2004.04~2007.03	한국과학재단	지역우수과학자	Multilevel B-spline 근사 및 응용에 관한 연구
2003.07~2004.06	정보통신부		직교 다항식을 이용한 3D 컴퓨터그래픽 폴리곤 메쉬의

			압축 및
2003.03-2004.02	정보통신교육원		무선인터넷 전문인력 양성사업
1999.07-2000.07	한국과학재단		Least-squares degree reduction of Bezier type surfaces

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Biography

Professor Lee ByungGook is a professor at the Department of Computer Engineering at Dongseo University in Busan. Prior to this, he graduated from the Department of Mathematics at Yonsei University, and received a Master's degree in Applied Mathematics from KAIST and a Doctorate in Applied Mathematics from KAIST. His current research interests include computer vision, image processing, interactive multimedia art, deep learning, and AI.

In the meantime, he has published 45 SCI papers, 25 domestic patent applications, 12 registrations, 9 international patent applications, and 2 registrations. In 2015, He was selected as one of the Top 100 National Research and Development Excellence Awards.

통계와 행렬대수학을 위한 **M행렬 언어(88~89)**

- 통계학이나 행렬대수학및 여러분야에서 널리사용되고 있는 행렬을 기본 데이터 구조로하여 번역기(interpreter)형식의 행렬언어를 구현하였다.
- M Matrix Language for Statistics and Matrix Algebra, M.S. Thesis, Korea Advanced Institute of Science and Technology(1989)
- M Matrix Language for Statistics and Matrix Algebra, Korea and Japan Conference of Statistical Computing and Data Analysis, GyeongJu (1989.7.13)
- 통계와 행렬대수학을 위한 M행렬언어, 한국 경영 과학회 89. 추계 학술대회, 이화여자대학교 (1989.9.23)

한글의 위상기하학적 분석에 관한 연구(90)

- 문서 인식및 처리기의 개발에 관한 연구 과제중 sub과제
- 과거처 특정연구과제, 기업주도형, (주)삼보컴퓨터
- Qnix 레이저 빔 프린트 H4 폰트 520자 대상 , 99%인식률, 분당 250자인식
- XOR특성값에 의한 판별분석(Discriminant Analysis)

Font Image Smoothing System및 대조 편집기 개발(91)

- (주)한국컴퓨터기술(KCE)은 전자출판 전문회사로서 한글폰트자동생성기의 개발이 절실하였다. 본 시스템은 오퍼레이터의 감각에 의하여 수작업으로 행하던 작업을 전산화한 것으로 다음과 같이 구성된다.
- 한글원도를 스캐너에 의해 입력받아 자동적으로 한글자씩 분리를 하며, 이를 대상으로 원도 제작자의 의도에 충실하면서, 원도의 보관 상태나 스캐닝 작업에서 발생한 노이즈를 제거하여 고품질의 폰트를 제작,관리하는 시스템이다. 이를 위하여 fuzzy이론을 응용한 filtering알고리즘을 개발하였다.
- 또한 신문사를 대상으로하는 대조편집기 시스템을 개발하였다. 논리구조와 레이아웃구조로 구조화된 문서편집을 할 수 있으며, preview기능을 갖는 전자출판 시스템이다. 여기에서 시스템 디자인을 담당하였다.

폰트 라이브러리및 서브 시스템 개발(92)

- 과거처 제조업 경쟁력 강화 사업, 한국 표준과학 연구원, (주) 휴먼 컴퓨터
- 개방형 시스템을 전제로한 문서구조는 폰트의 표준화및 공용화를 요구한다. 폰트 표준화의 일환으로 ISO DIS 9541이 제시되었고, 공용화를 위하여 폰트 라이브러리및 서브 시스템이 제안

되었다. 본 과제는 제안된 시스템의 상용화를 목표로하고 휴먼 컴퓨터와 공동으로 수행하고 있으며, 여기에서 개발시스템의 폰트 처리 부분을 담당했다.

한글 자소 조합 폰트 에디터 및 모의 실험기 개발(92)

- 과기처 제조업 경쟁력 강화 사업, 한국 표준과학 연구원 외 7개 참여기업
- 한글 폰트 개발에 관한 연구과제 중 sub과제
- 국제 표준코드로 정착되고 있는 Unicode에 대비하여 조합 가능한 한글 11,172자의 폰트를 용이하게 개발할 수 있는 시스템을 개발하였다. 구현된 시스템은 글꼴 설계 전문가(서울여대 기김진평교수)의 조언을 얻어, 글꼴 설계자의 의도를 최대한 반영하였다. 본 시스템은 한글의 창제 원리인 자소조합에 의한 디자인 시스템으로 자소조합규칙의 표현방법을 연구하였으며, 이를 모의실험할 수 있는 실험기를 구현하였다. 위의 시스템은 글꼴 개발업체에 보급되어 그 성능의 우수성을 인정 받았다.
- Byung-Gook Lee, Woan-Kyu Lee and YunBeom Park, "An Efficient Representation of Combination Rule for the Hangul Typeface Design", The Transactions of The Korea Information Processing Society, Vol. 3(1996), No 6, pp. 1580-1587

A Data Based Algorithm for Choosing the Bandwidth in the Nonparametric Estimation(90~93)

- Byung Gook Lee and Byung Chun Kim, An Efficient Algorithm for The Least-Squares Cross-Validation with Symmetric and Polynomial Kernels. Communications in Statistics.-Simulation and Computation, Vol.19(1990), No 4.
- An Efficient Algorithm for The Least-Squares Cross-Validation with Symmetric and Polynomial Kernels. 통계 계산 연구회 발표회(1990.9.23)
- Byung Gook Lee and Byung Chun Kim, An Efficient Algorithm for The Nonparametric Regression Estimation. Japanese Society of Computational Statistics, Vol. 5(1992), No 1.
- Byung Gook Lee, A Data Based Algorithm for Choosing the Bandwidth in the Nonparametric Estimation. Ph.D. Thesis, Korea Advanced Institute of Science and Technology(1993)

CGM/CGI Editor 개발 (93)

- (주) 데이콤 종합 연구소, 개방형 시스템 연구실, 선임연구원
- 한글 폰트 처리기 담당, X-windows 환경에서 개발

X.400 Client 개발 (94)

- (주) 데이콤 종합 연구소, 개방형 시스템 연구실, 선임연구원, EDI 사업본부 과제
- MS Windows 3.1 환경에서 SDK 프로그램으로 개발

고효율 실시간 Voice 및 Video Streaming 기술 개발(01)

- 2001 산학연컨소시엄과제, (주)이즈커뮤니케이션
- 인터넷의 급속한 확장에 힘입어 인터넷 교육시장이 확대됨에 따라 (주)이즈커뮤니케이션에서 개발 진행중인 istutor에서 적용할 고성능, 고효율 실시간 Voice 및 Video Streaming 기술 개발을 목표로 한다.