

Sehwan Kim, Ph.D.

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UNIVERSITY OF CALIFORNIA, SANTA BARBARA CA 93106

Contact Information

Affiliation: UCSB Four Eyes Lab.
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Education

Ph.D., Dept. of Information & Communications (DIC), 2006

Gwangju Institute of Science and Technology (GIST), Gwangju, Korea

Dissertation: Indoor Scene 3D Reconstruction Using Depth and Color Images

Committee Members: Dr. Kari Pulli, Prof. Kwan Heng Lee, Prof. Soon-Yong Park, Prof. Yo-Sung Ho, Prof. Woontack Woo

M.S., Dept. of Information & Communications (DIC), 2000

Gwangju Institute of Science and Technology (GIST), Gwangju, Korea

Thesis: A Study on Illumination Adaptive Face Detection and Feature Extraction

Committee Members: Prof. R.S. Ramakrishna, Prof. Tae-Sun Choi, Prof. Yo-Sung Ho

B.S., Dept. of Electronics Engineering, 1998

University of Seoul (UOS), Seoul, Korea

Summer Sessions, Dept. of Computer Science, June 2001 - Aug. 2001

University of California, Berkeley, CA, USA

Classes: Scheme Language, Technical Writing

Research Interests

- ✓ Real-time Camera Pose Tracking for Indoor/Outdoor Augmented Reality, Sensor fusion (Inertial Sensor and Camera)
- ✓ Video/Image Processing, 3D Computer Vision and Its Applications (Attentive AR and Mediated Reality)
- ✓ Real-time 3D Vision-based HCI (Face Detection and Tracking, Full-body Natural Interaction)
- ✓ Virtual/Augmented/Mixed Reality (VR/AR/MR), Wearable Computing
- ✓ 3D Vision-based pi-VE (Photo-realistic Interactive Virtual Environment) for MR applications

Research & Work Experience

<p>Junior Specialist, <i>Four Eyes Lab., Dept. of Computer Science, University of California, Santa Barbara, CA, USA.</i> (Advisor: Prof. Tobias Höllerer)</p> <ul style="list-style-type: none"> Acquire surround-view panoramas using a single hand-held or head-worn camera based on real-time camera orientation tracking. Present methodology for camera orientation relocalization using ‘virtual keyframes’ for on-line environment map construction when tracking fails. 	<p>Jan. 2009 - Present</p>
<p>Consultant and Programmer, <i>Mayachitra, Inc., Santa Barbara, CA, USA.</i> (Supervisor: Dr. Marco Zuliani)</p> <ul style="list-style-type: none"> Analyzed image feature descriptors (Log-polar Gabor Jet Descriptor and Fourier Descriptor) for a fully automatic image mosaicking of arbitrary number of images, and implemented an experimental testbed for evaluation. Developed the Advanced Image Pair Registration (AIPR) software that registers unordered sets of images in a completely automatic manner. (Using C#, WPF, .Net Framework) 	<p>Feb. 2008 - June 2009</p>
<p>Post-Doctoral Researcher, <i>Four Eyes Lab., Dept. of Computer Science, University of California, Santa Barbara, CA, USA.</i> (Advisor: Prof. Tobias Höllerer)</p> <ul style="list-style-type: none"> Based on the concept of ‘Anywhere Augmentation: Mobile AR in any situation and location’, estimated a camera pose in real-time through sensor fusion of a camera, an inertial sensor and GPS. Generated a 3D building model using aerial photos and video images, and used an Unscented Kalman Filter (UKF) for pose estimation. 	<p>Oct. 2006 - Dec. 2008</p>
<p>Post-Doctoral Researcher, <i>Culture Technology Institute, GIST, Gwangju, Korea.</i> (Advisor: Prof. Woontack Woo)</p> <ul style="list-style-type: none"> Investigated registration and interaction methods for Mobile Augmented Reality System (MARS) based on the concept ‘Anywhere Augmentation’. 	<p>Mar. 2006 - Sept. 2006</p>
<p>Graduate Student Researcher, <i>U-VR Lab., DIC, GIST, Gwangju, Korea.</i></p> <ul style="list-style-type: none"> Generated MR/AR environments through registration methods for a photo-realistic 3D scene reconstruction. Investigated multi-modal full-body interaction methods, based on disparity and motion information, in real-time. Investigated 3D object segmentation/tracking algorithms with asynchronous digital cameras. Developed 3D vision-based natural interaction methods for AR systems. 	<p>Mar. 2001 - Feb. 2006</p>
<p>Research Assistant, <i>Visual Communication Systems Lab., DIC, GIST, Gwangju, Korea.</i></p> <ul style="list-style-type: none"> Investigated image retrieval algorithms based on color/texture/shape. Investigated face detection and feature extraction algorithms under various illumination conditions. Developed vision algorithms: edge detection, motion estimation, stereo vision, etc. Developed various image/video coding algorithms, which include transform, quantization, and entropy coding. Extensive knowledge on JPEG, MPEG-1, -2, -4, -7, H. 261, H. 263, etc. 	<p>Mar. 1998 - Feb. 2001</p>
<p>Teaching Assistant, <i>DIC, GIST, Gwangju, Korea.</i> Classes: Image-based Rendering, Wearable Augmented Reality, Geometric Computational 3D Vision, Augmented Reality, Human Computer Interaction, Random Process, Human Computer Interaction</p>	<p>Mar. 2002 - Dec. 2005</p>
<p>Grader, <i>DIC, GIST, Gwangju, Korea</i> Class: Digital Signal Processing</p>	<p>Mar. 2002 - June 2002</p>

Publications

1. C. Coffin, **S. Kim** and T. Höllerer, "Addressing Dynamic Lighting Changes in Real-time Panorama Mapping and Keyframe-based Recovery," *IEEE/ACM Intl. Symposium on Mixed and Augmented Reality (ISMAR)*, Oct. 13-16, 2010. **(Submitted)**
2. **S. Kim**, C. Coffin and T. Höllerer, "Robust Relocalization and Its Evaluation For Online Environment Map Construction," *IEEE Transactions on Visualization and Computer Graphics*, 2010. **(Accepted)**
3. C. Coffin, **S. Kim** and T. Höllerer, "Evaluation of Tracking Robustness in Real Time Panorama Acquisition," *IEEE Virtual Reality (VR)*, pp. 259-260, Mar. 20-24, 2010.
4. C. Coffin, **S. Kim** and T. Höllerer, "Evaluation of Four Methods for Real Time Panorama Acquisition," *UCSB Computer Science Tech Report 2010-01*, Jan. 2010.
5. **S. Kim**, C. Coffin and T. Höllerer, "Relocalization Using Virtual Keyframes For Online Environment Map Construction," *The 16th ACM Symposium on Virtual Reality Software and Technology (VRST)*, pp. 127-134, Nov. 18-20, 2009. **(Best Paper Honorable Mention)**
6. C. Lee, J. Ventura, C. Coffin, **S. Kim** and T. Höllerer, "Anywhere Access with Annotated Environment Maps," *AR 2.0: Social Augmented Reality workshop in conjunction with ISMAR2009*, Oct. 19-22, 2009.
7. **S. Kim**, J. Ventura, J-S Chang, T. Lee and T. Höllerer, "Towards 3D Modeling of Buildings using Mobile Augmented Reality and Aerial Photographs," *Journal of The Institute of Electronics Engineers of Korea*, vol. 46, no. 2, pp. 84-91, 2008.
8. **S. Kim**, S. DiVerdi, J-S. Chang, T. Kang, R. Iltis and T. Höllerer, "Implicit 3D Modeling and Tracking for Anywhere Augmentation," *The 14th ACM Symposium on Virtual Reality Software and Technology (VRST)*, pp. 19-27, Nov. 5-7, 2007.
9. **S. Kim**, Y. Suh, Y. Lee and W. Woo, "U-VR: When VR Meets ubiComp" *The 4th International Symposium on ubiquitous VR*, pp. 1-4, July 16-10, 2006. **(Invited Paper)**
10. **S. Kim**, Y. Lee and W. Woo, "How to Realize Ubiquitous VR?," *The 3rd International Workshop on the Tangible Space Initiative: TSI in conjunction with Pervasive 2006*, pp. 493-504, May 7-10, 2006.
11. **S. Kim** and W. Woo, "Panoramic 3D Reconstruction of an Indoor Scene Using A Multi-view Camera," *12th Korea-Japan Joint Workshop on Frontiers of Computer Vision (FCV)*, pp. 25-30, Feb. 2-3, 2006.
12. **S. Kim** and W. Woo, "Registration of partial 3D point clouds acquired from a multi-view camera for indoor scene reconstruction," *Journal of IEICE Transactions on Information and Systems*, Vol. E89-D, No. 1, pp. 62-72, 2006.
13. J. Cha, S-M. Kim, S-Y. Kim, **S. Kim**, S. Yoon, I. Oakley, J. Ryu, K. Lee, W. Woo and Y-S. Ho, "Client System for Realistic Broadcasting: A First Prototype," *Lecture Notes in Computer Science (LNCS)*, vol. 3768, pp. 176-186, Nov. 13-16, 2005.
14. **S. Kim** and W. Woo, "Indoor Scene Reconstruction using a Projection-based Registration Technique of Multi-view Depth Images," *Lecture Notes in Computer Science (LNCS)*, vol. 3768, pp. 759-771, Nov. 13-16, 2005.
15. **S. Kim** and W. Woo, "Projection-based Registration Using a Multi-view Camera for Indoor Scene Reconstruction," *IEEE Computer Society Proc. of 3-D Digital Imaging and Modeling (3-DIM)*, pp. 484-491, June. 13-17, 2005.
16. M. Lee, **S. Kim** and W. Woo, "A 3D Vision-based Interaction Method with a Simplified Hand Model," *11th Korea-Japan Joint Workshop on Frontiers of Computer Vision (FCV)*, pp. 148-153, Feb. 27 - 28, 2005.
17. S. Jang, **S. Kim** and W. Woo, "When VR meets UbiComp," *The Third Young Investigator's Forum in Virtual Reality*, Feb. 24-26, 2005. (CD Proceedings)

18. **S. Kim**, K. Kim and W. Woo, "Projection-based Registration using Color and Texture Information for Virtual Environment Generation," *Lecture Notes in Computer Science (LNCS)*, vol. 3331, pp. 434-443, Nov. 30 - Dec. 3, 2004.
19. **S. Kim**, E. Chang, C. Ahn and W. Woo, "Image-based Panoramic 3D Virtual Environment Using Rotating two Multi-view Cameras," *IEEE Proc. of International Conference on Image Processing (ICIP)*, vol. 1, pp. 917-920, Sept. 14-17, 2003.
20. J. Yoon, **S. Kim**, J. Ryu and W. Woo, "Multimodal Gumdo Simulation: The Whole Body Interaction with an Intelligent Cyber Fencer," *Lecture Notes in Computer Science (LNCS)*, vol. 2532, pp. 1088-1095, Dec. 16, 2002.
21. J. Yoon, **S. Kim**, J. Ryu and W. Woo, "An Immersive Kendo (Gum-do) Game with an Intelligent Cyber-Fighter," *Proc. of Virtual Reality and its Application in Industry (VRAI)*, pp. 400-407, Apr. 9, 2002.
22. **S. Kim** and W. Woo, "3D Movement Tracking with Asynchronous Digital Cameras for Interactive Systems," *Proc. of SPIE PW-El-Visual Communications and Image Processing (VCIP)*, vol. 4671, pp. 502-512, Jan. 2002.
23. **S. Kim**, W. Woo and Y. Ho, "Image Retrieval using Multi-Scale Color Clustering," *IEEE Proc. of International Conference on Image Processing (ICIP)*, vol. I, pp. 666-669, Oct. 7-10, 2001.
24. **S. Kim**, W. Woo and Y. Ho, "Image Segmentation using Multi-Scale Color Clustering for Image Retrieval Systems," *Proc. of Int'l Technical Conference on Circuits/Systems, Computers and Communications (ITC-CSCC)*, vol. II, pp. 889-982, July, 2001.
25. **S. Kim** and Y. Ho, "Illumination-Adaptive Face Detection and Facial Feature Extraction," *Proc. of World Multiconference on Systemics, Cybernetics and Informatics (SCI) 2000*, vol. 5, part 1, pp. 128-132, July 23-26, 2000.

Papers in Korean

1. **S. Kim** and W. Woo, "3D Scene Reconstruction of an Indoor Scene Using Depth and Color Images," *Journal of The Human Computer Interaction (HCI) Korea*, pp. 58-66, May 25, 2006 (**Invited Paper**).
2. **S. Kim** and W. Woo, "Panoramic 3D Reconstruction of an Indoor Scene Using Depth and Color Images Acquired from A Multi-view Camera," *Proc. of The Human Computer Interaction (HCI) Korea*, Vol. 1, pp. 24-32, Feb. 3-6, 2006.
3. **S. Kim** and W. Woo, "Photo-realistic 3D Reconstruction of an Indoor Scene Using Registration and Integration Techniques," *The 18th Workshop on Image Processing and Image Understanding (IPIU)*, pp. 262-267, Feb. 8-10, 2006.
4. S-Y. Kim, J. Cha, S-M. Kim, **S. Kim**, S. Yoon, J. Ryu, K. Lee, W. Woo and Y-S. Ho, "Immersive Contents Representation for the Client System of Realistic Broadcasting," *Proc. of The Institute of Electronics Engineers of Korea (IEEK)*, pp. 18-22, Nov., 2005.
5. **S. Kim** and W. Woo, "Registration Technique of Partial 3D Point Clouds Acquired from a Multi-view Camera for Indoor Scene Reconstruction," *Journal of The Institute of Electronics Engineers of Korea (IEEK)*, vol. 42, pp. 39-52, Mar., 2005.
6. M. Lee, **S. Kim** and W. Woo, "Development of Natural Interaction-enabled AR-based Immersive Modeling Environment," *Proc. of The Human Computer Interaction (HCI) Korea*, pp. 263-268, Jan. 31 - Feb. 3, 2005.
7. **S. Kim**, K. Kim and W. Woo, "Multiple Camera Calibration for 3D Panoramic Virtual Environment," *Journal of The Institute of Electronics Engineers of Korea (IEEK)*, vol. 41, pp. 137-148, Mar. 1, 2004.
8. **S. Kim**, K. Kim and W. Woo, "Depth-based Registration for Image-based Virtual Environment Generation," *The 16th Workshop on Image Processing and Image Understanding (IPIU04)*, pp. 129-134, Jan. 9-10, 2004.
9. K. Kim, **S. Kim** and W. Woo, "Multi-view Camera Calibration for Image-based Virtual Environment Generation," *The 16th Workshop on Image Processing and Image Understanding (IPIU04)*, pp. 154-159, Jan. 9-10, 2004.

10. K. Kim, **S. Kim**, J. Park and W. Woo, "Extrinsic calibration using a multi-view camera," *Proc. of The Institute of Electronics Engineers of Korea (IEEK)*, vol. 26, no. 2, pp. 187-190, Nov. 29, 2003.
11. K. Kim, **S. Kim** and W. Woo, "Optimization Technique of Extrinsic Parameters using a Multi-view Camera," *Proc. of The Korean Signal Processing Conference (KSPC)*, vol. 16, no. 1. pp. 75-78, 2003.
12. J. Yoon, **S. Kim**, J. Ryu and W. Woo, "A Full Body Gumdo Game with an Intelligent Cyber Fencer using Multi-modal (3D Vision and Speech) Interface," *Journal of The Korea Information Science Society (KISS)*, vol. 9, no. 4, pp. 420-430, Aug., 2003.
13. **S. Kim** and W. Woo, "Research trend on 3D image-based immersive virtual environment generation techniques," *Journal of the Korea Information Processing Society (KIPS)*, vol. 10, pp. 32-39, Jan. 1, 2003.
14. **S. Kim** and W. Woo, "Virtual Environment Generation using 3D Image-based Panorama," *The 15th Workshop on Image Processing and Image Understanding (IPIU)*, pp. 111-116, Jan. 8-10, 2003.
15. **S. Kim** and W. Woo, "Image-based 3D Mosaicking using Multiple 3D Cameras," *Proc. of The Korean Institute of Communication and Sciences (KICS)*, vol. 26, pp. 58-61, Nov. 23, 2002.
16. J. Yoon, **S. Kim**, J. Ryu and W. Woo, "An Immersive Multi-modal Virtual Kendo (Gum-do) Game with an Intelligent Cyber Fighter," *Proc. of The Human Computer Interaction (HCI) Korea*, Feb. 2002. (CD Proceedings)
17. **S. Kim**, N. Zhang and W. Woo, "Wearable Data Retrieval System using 3D Vision-based HMD," *Proc. of The Human Computer Interaction (HCI) Korea*, Feb. 4-7, 2002.
18. **S. Kim** and Y. Ho, "Illumination-adaptive Face Detection and Facial Feature Extraction in Color Images," *Proc. of The Korean Signal Processing Conference (KSPC)*, vol. 12, No. 1, pp. 1097-1100, Oct. 2, 1999.

Patent & Software Registration

- ✓ Sehwan Kim and Woontack Woo, VR@Home: BGModeling Package, Registration No. 2006-01-169-006697, Registration Date: Dec. 8, 2006, Korea.

Software and Hardware Skills

Software	<ul style="list-style-type: none"> ✓ Programming Languages: C# (with .Net 3.5 and Windows Presentation Foundation (WPF)), C/C++, Visual C++, MS Access, Matlab, HTML, UNIX, Scheme, GPU programming (Cg) ✓ Image/Vision/VR/AR Libraries: Microsoft Foundation Class (MFC), OpenGL, Intel® Computer Vision Library (OpenCV), Intel® Image Processing Library (IPL), Intel® C++ Compiler, Intel® Integrated Performance Primitives (IPP), Intel® Math Kernel Library (MKL), Intel® Threading Building Blocks (TBB) ✓ Software Tools: MS Office, Latex, Maya, GeoMagic, Photoshop, Premiere, Access ✓ Operating Systems: Linux, DOS, MS Windows (Up to Windows 7)
Hardware	<ul style="list-style-type: none"> ✓ Image/Vision/VR/AR System Interfaces: IEEE1394 cameras, USB cameras, Point Grey Cameras (Digiclops, Bumblebee, Ladybug, Firefly, Dragonfly2, Flea), IS-900 Motion Tracking System (Wireless MiniTrax Head Tracker, InterSense Inc.), SVGA Sony Glasstron PLM-S700E Head Mounted Display (HMD) ✓ Tracking Devices: Inertial Sensor (InertiaCube3, InterSense Inc.), GPS 18 USB (Garmin Inc.)
Applications	<ul style="list-style-type: none"> ✓ Aerial Photograph, Blue screen, Video Mixing, Stereo Rear-projection display

Projects

<p>(KIST*, Toyon*) "Access Anywhere" Interaction</p> <ul style="list-style-type: none"> ✓ Acquire panoramic imagery using hand-held or head-worn cameras in three major directions: a) Enabling live streaming of panoramic video data, b) Capturing 3D geometry using small integrated laser-range finders, and c) Integrating information from non-stationary cameras using model-building techniques from multi-view geometry computer vision. 	<p>Jan. 2009</p> <p>- Present</p>
<p>(KRF*, UCSB*) Research on a wearable computing system for Anywhere Augmentation</p> <ul style="list-style-type: none"> ✓ Generated a cube-shape 3D model on the fly using an aerial photograph and a video image, and estimated a camera pose using an inertial sensor, a camera and GPS in real-time for virtual text annotations. Investigated sensor fusion based on an Unscented Kalman Filter (UKF). 	<p>Oct. 2006</p> <p>- Dec. 2008</p>
<p>(ETRI*) Development of Immersive Media Contents Generation Platform for FTTH Subscribers (2nd Year/4 Years)</p> <ul style="list-style-type: none"> ✓ Generated a 3D surface for objects in outdoor environments by integrating multiple 3D point clouds, acquired from several viewpoints, using a multi-view camera. 	<p>July 2006</p> <p>- Dec. 2006</p>
<p>(ETRI*) Development of Immersive Media Contents Generation Platform for FTTH Subscribers (1st Year/4 Years)</p> <ul style="list-style-type: none"> ✓ Integrated multiple 3D point clouds, acquired from several viewpoints, into a single 3D point cloud using color and depth information by minimizing an energy function that consists of data and smoothness constraints in both 2D and 3D spaces. (Combined with camera calibration, light source estimation, real-time user segmentation, realistic shadow/shading modules for MR applications.) 	<p>July 2005</p> <p>- June 2005</p>
<p>(IITA*) Research on Realistic Digital Broadcasting Technology (2nd Year/2 Years)</p> <ul style="list-style-type: none"> ✓ Investigated registration and integration algorithms to reconstruct an indoor scene by a projection technique of a 3D point cloud into virtual image planes through camera projection matrices (Initial camera poses are estimated using a calibration algorithm) 	<p>Aug. 2004</p> <p>- July 2005</p>
<p>(IITA*) Research on Realistic Digital Broadcasting Technology (1st Year/2 Years)</p> <ul style="list-style-type: none"> ✓ Investigated a depth image refinement technique using spatio-temporal properties of 3D point clouds which are acquired by projecting a specially-designed pattern on an indoor environment using a projector. 	<p>Aug. 2003</p> <p>- July 2004</p>
<p>(ETRI*) Image-based Panoramic VE Generation, Modeling, and 3D HMD Display</p> <ul style="list-style-type: none"> ✓ Generated a virtual environment by moving a mobile robot to which one multi-view camera is attached. 	<p>June 2003</p> <p>- Nov. 2003</p>
<p>(ETRI*) Panoramic VE Generation using Multi-view Images</p> <ul style="list-style-type: none"> ✓ Investigated a stitching algorithm to generate a virtual environment by rotating two multi-view cameras, on a long bar, using a turntable. 	<p>May 2002</p> <p>- Nov. 2002</p>
<p>(GIST*) Vision-based 3D Interface for Human-Computer Interaction (2nd Year/2 Years)</p> <ul style="list-style-type: none"> ✓ Tracked a human body and two markers attached to a stick which is grasped by a user, and developed 3D vision-based natural interaction algorithms to fight with an intelligent virtual avatar which reacts to audio and video. 	<p>Jan. 2002</p> <p>- Dec. 2002</p>
<p>(GIST*) Vision-based 3D Interface for Human-Computer Interaction (1st Year/2 Years)</p> <ul style="list-style-type: none"> ✓ Generated an invisible 3D space sensor in a real environment, and developed 3D vision-based natural interaction algorithms to interact with a 3D space sensor. 	<p>Jan. 2001</p> <p>- Dec. 2001</p>

*Sponsors: Toyon (Research Corporation, CA), KIST (Korea Institute of Science and Technology), KRF (Korea Research Foundation), UCSB (University of California, Santa Barbara), ETRI (Electronics Telecommunications Research Institute), IITA (Institute for Information Technology Advancement), GIST (Gwangju Institute of Science and Technology)

Academic Awards

Best Paper Honorable Mention, <i>The 16th ACM Symposium on Virtual Reality Software and Technology (VRST)</i> , Kyoto, Japan.	Nov. 2009
Scholarship from Korea Research Foundation (KRF)	Oct. 2006 - Sept. 2007
Award in Public Subscription of Thesis for Activating Software Industry in Gwangju, Korea IT Industry Promotion Agency (KIPA), <i>Gwangju, Korea</i>	Jan. 2002
Scholarship from the Ministry of Science and Technology (MOST) of Korea	Mar. 2000 - Feb. 2004
Scholarship from the Ministry of Science and Technology (MOST) of Korea	Mar. 1998 - Feb. 2000
Department Scholarships 8 times, Dept. of Electronics Engineering, <i>University of Seoul (UOS), Seoul, Korea</i>	Mar. 1994 - Feb. 1998

Professional Activities

✓ Member

- The Institute of Electronics, Information and Communication Engineers (IEICE) (Sept. 2006 - Present)
- The Human Computer Interaction (HCI) Korea (Feb. 2002 - Present)
- The Society of Photographic Instrumentation Engineers (SPIE) (Jan. 2002 - Present)
- The Institute of Electrical and Electronics Engineers (IEEE) (Aug. 2001 - Present)
- The Institute of Electronics Engineers of Korea (IEEK) (June. 1999 - Present)

✓ Reviewer

- The Machine Vision and Applications (MVA) Journal (Springer) (2006 - Present), (Reviewed in 2006, 2009, 2010)
- IEICE Transaction on Information and Systems (2005 - Present), (Reviewed in 2006)
- The 12th International Conference on Ubiquitous Computing (ubiComp) 2010
- The Journal of the Korean Institute of Information Scientists and Engineers (KIISE) 2010
- The 8th International Conference on Pervasive Computing 2010
- The Conference of the Korean Institute of Information Scientists and Engineers (KIISE) 2009
- The International Journal of Virtual Reality (IJVR) 2009
- The 11th International Conference on Ubiquitous Computing (ubiComp) 2009
- The 7th International Conference on Pervasive Computing 2009
- The International Journal of Computer Games Technology 2008
- The IEEE and ACM International Symposium on Mixed and Augmented Reality (ISMAR) 2007
- The ACM International Symposium on Virtual Reality Software and Technology (VRST) 2007
- The International Symposium on Ubiquitous Computing Systems (UCS) 2006

- ✓ Technical Program Committee (TPC) Member & Reviewer
 - The International Conference on Edutainment 2008, 2009, 2010
 - The International Symposium on Ubiquitous Virtual Reality (ISUVR) 2007, 2008, 2009, 2010
 - The 4th International Workshop on Ubiquitous Virtual Reality (IWUVR) in conjunction with The International Conference on Pervasive Computing 2010
 - The 3rd International Workshop on Ubiquitous Virtual Reality (IWUVR) 2009
 - The International Workshop on Tangible Space Initiative (TSI) in conjunction with ISMAR 2007
 - The International Workshop on TSI in conjunction with The International Conference on Pervasive Computing 2006
- ✓ Co-General Chair: The 4th ISUVR 2006
- ✓ Invited Speaker: Towards Ubiquitous VR - When VR Meets ubiComp, *Dept. of Computer Science, University of North Carolina (UNC) at Chapel Hill, Aug. 28, 2007*
- ✓ Exhibition: The Information Technology Research Center (ITRC) Forum, *The COEX (Convention & Exhibition) Exhibition Center, Seoul, Korea, June 9-11, 2005*
- ✓ Student Volunteer: The 8th International Conference on Virtual Systems and Multimedia (VSMM), *Gwangju, Korea, Sept. 2002*

Leadership and Mentoring

Jan. 2008 - Present	Deacon, Conducting Bible Classes and Advising Young Members of Congregation, <i>Santa Barbara Korean Presbyterian Church, Santa Barbara, USA</i>
Jan. 2007 - Dec. 2007	President of the Young Adult Group, <i>Santa Barbara Korean Presbyterian Church, Santa Barbara, USA</i>
Sept. 2003 - Oct. 2006	Group Leader, Conducted Bible Classes, <i>Mustard Seed Korean Church, Gwangju, Korea</i>
Dec. 2002 - Feb. 2003	Mentor for Research Internship, Helped Seongwan Ryu (Hanyang University) develop an interface for navigation of a virtual environment using OpenGL. <i>GIST, Gwangju, Korea.</i>
June 2002 - Aug. 2002	Mentor for Research Internship, Helped Yoojin Ahn (Kyungpook National University) work on an Augmented Reality (AR) project where she transferred videos over the internet so that it can be displayed on a user's wearable AR computing system. <i>GIST, Gwangju, Korea.</i>
Dec. 2001 - Feb. 2002	Mentor for Research Internship, Helped Kijun Kwon (Kyungpook National University) transfer real-time video images using an MPEG video standard over the internet towards display on heterogeneous devices. <i>GIST, Gwangju, Korea.</i>
June 2001 - Aug. 2001	Mentor for Research Internship, Helped Youngjung Suh (Chonnam National University) develop a natural user interface using OpenGL for a multi-view camera which provides depth and color images simultaneously towards a natural user interaction between human and computer. <i>GIST, Gwangju, Korea.</i>
Jan. 2001 - Dec. 2001	Vice-president of the Young Adult Group, <i>Mustard Seed Korean Church, Gwangju, Korea</i>
Mar. 1994 - Feb. 1998	Member of the TIME (English Study Group), <i>University of Seoul (UOS), Seoul, Korea</i>

References

Available upon Request.