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EDUCATION

Aug. 2006 ~ Present
- **Purdue University**, West Lafayette, IN, USA
  - Ph.D. student in Electrical Computer Engineering (Major Area: Computer Engineering)
  - Thesis: Illustrative Visualization Techniques for Mobile Analytics
  - Advisor: Dr. David S. Ebert

Mar. 1998 ~ Feb.2000
- **Chung-Ang University**, Seoul, KOREA (South)
  - M.S. in Computer Science & Engineering (Major Area: Computer Graphics)
  - Thesis: A Study on Radiosity Acceleration Technique based on Hemicube Algorithm
  - Advisor: Dr. KyungHyun Yoon

Mar. 1994 ~ Feb.1998
- **Chung-Ang University**, Seoul, KOREA (South)
  - B.S. in Computer Science & Engineering
  - Thesis: A Survey on Online Character Recognition

PROFESSIONAL EXPERIENCE

Aug. ~ Nov. 2010
- **Research and Development Graduate Fulltime Internship**
  Internet Graphics Group, Microsoft Research Asia, Beijing, China
  Mentor: Dr. Shixia Liu

Aug. 2006 ~ Present
- **Graduate Research Assistant**
  Member of the Purdue University Regional Visualization and Analytics Center (PURVAC)
  Member of the Purdue University Rendering and Perceptualization Laboratory (PURPL)

Sept. 2000 ~ Aug. 2006
- **Research Engineer**
  Computer Graphics Research Team, Digital Contents Research Division,
  Electronics and Telecommunications Research Institute, Daejeon, KOREA (South)

RESEARCH INTERESTS

- ***Visual Analytics***: Mobile Visual Analytics
- ***Information Visualization***: Multivariate Abstraction
- ***Computer Graphics***: Non-Photorealistic Rendering, Illustrative Visualization, Global Illumination, Inverse Rendering, Image-Based Lighting

RESEARCH PUBLICATIONS

(Journal Papers)

J7 • F. Zhu, M. Bosch, I. Woo, S. Kim, C. J. Boushey, D. S. Ebert, E. J. Delp. **"The Use of Mobile Devices in Aiding Dietary Assessment and Evaluation."** *IEEE Journal of Selected Topics in Signal Processing, Vol. 4, Issue 4, pp. 756-766, Aug. 2010.*

J6. • I. Woo, S. Kim, R. Maciejewski, D. S. Ebert, T. D. Ropp, K. Thomas. **"SDViz: A Context-Preserving Interactive Visualization System for Technical Diagrams."** *Computer Graphics Forum*, 28(3), pp. 943-950, June 2009.

J5. • S. Kim, R. Maciejewski, K. Ostmo, E. J. Delp, T. Collins, D. S. Ebert. **"Mobile Analytics for Emergency Response and Training."** *Information Visualization Journal*, (2008)7, pp.77-88, 2008.

J4. • S. Kim, B. Choi, **"High Dynamic Range Image Texture Mapping based on VRML."** *Springer-Verlag LNCS Vol.2669/2003*, pp.488-497, May 2003.

J3. • S. Ryoo, S. Kim, K. Yoon. **"The Trend of Computer Graphics Modeling and Rendering Technology."** KMMS, 6(3), pp.5~24, September 2002.

J2. • Y. Park, S. Kim, C. Jho, K. Yoon. **"Manual Color Paper Mosaic Technique."** *The journal of Computer Graphics, 9(3)*, pp.17~23, Korea, 2000.

J1. • S. Kim, H. Ko, K. Yoon, **"Acceleration of a Formfactor Calculation through the Use of the 2D Tree."** *Springer-Verlag LNCSE Vol.13*, pp.100-111, Dec. 1999.

(Conference Papers)

C21. • J. Chae, I. Woo, S. Kim, R. Maciejewski, M. Zhu, E. J. Delp, C. J. Boushey, D. S. Ebert, **"Volume Estimation Using Food Specific Shape Templates in Mobile Image-Based Dietary Assessment."** *Computational Imaging IX, IS&T/SPIE Electronic Imaging 2011*, Vol.7873, 2011.

C20. • S. Kim, T. Schap, M. Bosch, R. Maciejewski, E. J. Delp, D. S. Ebert, C. J. Boushey, **"Development of a Mobile User Interface for Image-based Dietary Assessment."** *The 9th International Conference on Mobile and Ubiquitous Multimedia (MUM)*, 2010.

C19. • S. Kim, I. Woo, R. Maciejewski, D. S. Ebert, T. Ropp, K. Thomas. **"Evaluating Effectiveness of Visualization Techniques for Schematic Diagrams in Maintenance Tasks."** *The 7th Symposium on Applied Perception in Graphics and Visualization, pp.33-40, 2010.*

C18. • S. Kim, I. Woo, R. Maciejewski, D. S. Ebert. **"Automated Hedcut Illustration Using Isophotes."** *The 10th Symposium on Smart Graphics 2010, pp.172-183, 2010.*

C17. • I. Woo, K. Ostmo, S. Kim, D. S. Ebert, E. J. Delp, C. J. Boushey, **"Automatic portion estimation and visual refinement in mobile dietary assessment."** *Computational Imaging VIII, IS&T/SPIE Electronic Imaging 2010, Vol. 7533, pp. 75330O-75330O-10 (2010).*

C16. • S. Kim, R. Maciejewski, T. Isenburg, W. M. Andrews, W. Chen, M. C. Sousa, D. S. Ebert, **"Stippling by Example."** *In Proceedings of the 7th international symposium on Non-photorealistic animation and rendering (NPAR)*, pp.41-50, 2009.

C15. • R. Maciejewski, S. Kim, D. King-Smith, K. Ostmo, N. Klosterman, A. K. Mikkilineni, D. S. Ebert, E. J. Delp, T. F. Collins, **"Situational Awareness and Visual Analytics for Emergency Response and Training."** *IEEE International Conference on Technologies for Homeland Security*, pp.252-256, 2008.

C14. • S. Kim, Y. Jang, A. Mellema, D. S. Ebert, T. Collins, **"Visual Analytics on Mobile Devices for Emergency Response."** *IEEE Symposium on Visual Analytics Science and Technology (VAST)*, pp.35-42, 2007.

C13. • S. Kim, C. Chu, E. Lee, **"Development of a 3D game engine and a pilot game for PDA."** *CGAIED04*, England, Nov. 2004.

C12. • H. Kim, S. Kim, J. Kim, B. Choi. **"Framework for realistic surface representation of real objects."** *Proceedings of the 4th WSEAS International Conference on Signal Processing, Computational Geometry & Artificial Vision (ISCGAV'04)*, pp.1-5, 2004.

C11. • H. Kim, S. Kim, B. Choi. **"Web Client System for 3D Virtual Shopping Mall."** *Proceedings of the Internet and Multimedia System and Applications*, 2003.

C10. • B. Koo, H. Kim, S. Kim, J. Kim, B. Choi, D. Kim. **"Design and Implementation of Networked Virtual Reality System."** *Proceedings of the International Conference on Imaging Science, Systems and Technology*, pp.384-351, 2003.

C9. • H. Kim, J. Kim, S. Kim, B. Koo, B. Choi, S. Han, **"Virtual Shopping Mall Client System Design Including Group-share."** *Proceedings of the Applied Modeling and Simulation*, 2002.

C8. • S. Han, M. Lim, D. Lee, H. Kim, B. Koo, S. Kim, B. Choi. **"Scalable Network Support for 3D Virtual Shopping Mall."** *Proceedings of the 8th International Conference on Virtual System and Multimedia (VSMM2002)*, pp. 336-345, 2002.

C7. • S. Kim, H. Kim, B. Koo, B. Choi, W. Oh, **"Java3D-based simple event processing for VRML"**, *The Korea Multimedia Society*, Korea, Nov., 2001.

C6. • H. Kim, S. Kim, B. Koo, B. Choi. **"Layered-Depth Image Using Pixel Grouping."** *Proceedings of the Seventh International Conference on Virtual Systems and Multimedia (VSMM'01)*, pp.121~127, 2001.

C5. • S. Kim, D. Kwon, T. Park, B. Choi, **"A Simple event model in Java3D-based VRML browser."** *Graphicon2001*, Russia, Aug., 2001.

C4. • S. Kim, B. Koo, B. Choi, **"Image-based Techniques."** *The Korea Information Science Society*, Korea, May, 2001.

C3. • S. Seo, S. Kim, Y. Park, K. Yoon, **"Color Paper Mosaic Rendering."** *Sketches and Applications, ACM SIGGRAPH01*, p.157, Aug. 2001.

C2. • S. Kim, S. Kim, K. Yoon. **"A Study on the Ray-Tracing Acceleration Technique Based on the ZF-Buffer Algorithm."** *Fourth International Conference on Information Visualization (IV'00)*, pp.393~398, 2003.

C1. • S. Kim, K. Yoon, **"An Alternative to the Hemicube Algorithm for Computing Formfactor."** *Graphicon2000*, pp.105-109, Russia, Aug. 2000.

(Research Posters)

Po4. • S. Kim, R. Maciejewski, K. Ostmo, D. S. Ebert, **"Visual Analytics for Emergency Response and Training on Mobile Devices"**, *DHS Summit 2008*, Washington DC, March 2008. (selected with oral presentation)

Po3. • S. Kim, Y. Jang, D. S. Ebert, **"Visual Analytics for Emergency Response Using Mobile Devices"**, *DHS Summit 2007*, Washington DC, March 2007.

Po2. • S. Kim, H. Kim, B. Kim, B. Koo, **"A Unified Framework for 3D Non-Photorealistic Rendering"**, *ACM SIGGRAPH06 Research Poster*, Aug. 2006.

Po1. • S. Kim, B.Choi, **"Image-based Relighting for the Contents in Virtual Environment"**, *IPIU20*, Korea, Jan. 2002.

(Technical Reports)

T5. • D. S. Ebert, S. Kim, I. Woo, R. Maciejewski, K. Thomas. **"Novel Presentation Methods for Technical Data."** AFRL-RH-WP-TR-2009-0024, 2008.

T4. • D. S. Ebert, T. F. Collins, S. Kim, Y. Jang, A. Pattath. **"Two Test Beds for Mobile Visual Analytics."** VAC Views February Issue, pp. 12-13, Feb. 2007.

T3. • S. Kim, J. Lee, B. Kim, H. Kim, **"Recent Trends in Non-Photorealistic Rendering."** *Electronics Telecommunications and Research Institute Technical Report*, Aug. 2005.

T2. • S. Kim, S. Pyo, B. Choi, **"Analysis of High Dynamic Range Image format: OpenEXR."** *Electronics Telecommunications and Research Institute Technical Report*, Feb. 2004.

T1. • S. Kim, B. Choi, **"The Trend of a High Dynamic Range Image."** *Electronics Telecommunications and Research Institute Technical Report*, Aug. 2002.

(Patents)

P9. • S. Kim, J. Kim, H. Kim, M. Cho, B. Choi, H. Kim. "Rendering Apparatus and Method for real-time global illumination in real light environment." 10-0609145-0000.

P8. • S. Kim, J. Lee, B. Kim, H. Kim, B. Koo. "A Unified framework based on extensible styles for 3D Non-photorealistic rendering." US7663622.

P7. • S. Kim, S. Pyo, B. Choi, H. Kim. "Virtual HDR Camera for creating HDRI for virtual environment." 10-0514308-0000.

P6. • J. Kim, M. Cho, H. Kim, S. Kim, B. Choi, H. Kim. "Apparatus and method for rendition of image reality." US2005/0267726 A1.

P5. • B. Koo, S. Kim, H. Kim, J. Kim, B. Choi. "System and Method for embodying virtual reality." 10-0443552-0000

P4. • B. Koo, S. Kim, H. Kim, J. Kim, B. Choi. "System and Method for embodying virtual reality." US2004/0095385 A1.

P3. • S. Kim, B. Koo, H. Kim, B. Choi. "Client System for embodying 3-dimension virtual reality and method for embodying virtual reality using same." 10-0453225-0000

P2. • K. Yoon, C. Jho, Y. Park, S. Seo, S. Kim. "Method for representing a color paper mosaic using computer." US2004/0036693 A1.

P1. • K. Yoon, C. Jho, Y. Park, S. Seo, S. Kim. "Method for representing a color paper mosaic using computer." 10-0407685-0000

RESEARCH PROJECTS

Graduate Fulltime Internship: Microsoft Research Asia (Aug. ~ Nov. 2010)

Aug. ~ Nov. 2010

- **Temporal visualization of a large scale of text data**
  - Research and development of a temporal visualization technique for a large amount of tweet data

Graduate Research: Ph.D. (Aug. 2006 ~ Present)

Jan. 2010 ~ Mar. 2011

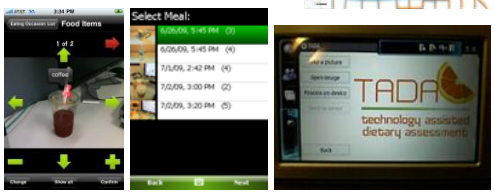
- **Indoor Routing Visualization for Multi-floor Buildings on Mobile Devices**
  - Research and development of interactive 2D/3D visualization methods for indoor routing in a multi-floor building on mobile devices (iPhone/iPad)

Feb. 2010 ~ Present

- **A Multivariate Abstraction Technique for Geo-visualization**
  - Research and development of an interactive visual encoding paradigm for multi-dimensional data while focusing on overcoming issues in over-plotting and clutter

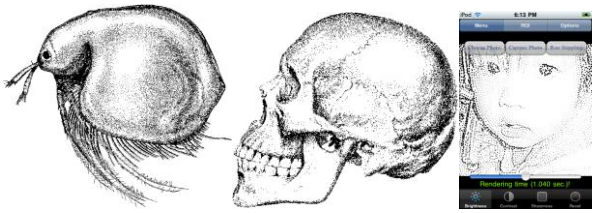
Nov. 2008 ~ Aug. 2010

- **Technology Assisted Dietary Assessment**
  - Development of image based dietary assessment applications on mobile devices (iPhone, HTC phone, Nokia N810/N900 Internet Tablet)



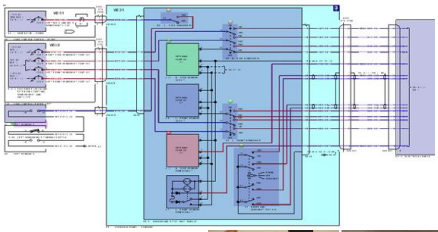
Sept. 2007 ~ Feb. 2010

- **Illustrative Visualization**
  - Research and development of 2D stippling algorithm using textures synthesized by examples
  - Research and development of directional stippling using isophotes



Aug. 2007 ~ Oct. 2008

- **Novel Presentation Methods for Technical Data**
  - Research and development of context- preserving visualization methods for large schematic and wiring diagrams
  - User study with engineering students and maintenance personnel using aircraft diagrams



Aug. 2006 ~ July 2007

- **Mobile Visual analytics for Emergency Response and Training**
  - Research and development of visualization and visual analytics methods on mobile devices (i.e., Dell Axim X51v, Sprint PCS Vision smartphone PPC-6700, OQO 02) with deployment of fire evacuation and rescue operation

Research Engineer (Sept. 2000 ~ Aug. 2006)

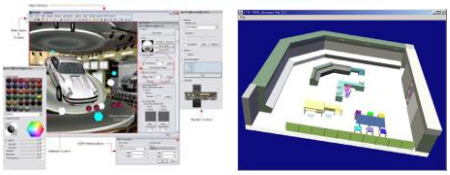
Jan. 2005 ~ Aug. 2006

- **Development of Non-Photorealistic Animation Technology**
  - Development of integrated 3D non-photorealistic rendering techniques (cartoon, hatching, and sumie)

Jul. 2003 ~ Dec. 2004
- **Development of S/W for production of digital contents with high realism**
  - Development of image-based lighting techniques using high dynamic range images (HDRI)

Jan. ~ Jun. 2003
- **Development of 3D Engine for PDA**
  - Development of 2D/3D engine and pilot games for PDA (funded by Samsung Electronics)
  - Development of rendering engine and a 3D puzzle game

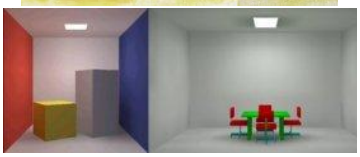
Sept. 2000 ~ Dec. 2002
- **The Networked Virtual Reality**
  - Development of image-based interactive relighting for virtual reality environment
  - Development of a Java3D based VRML97 browser



Graduate Research: Master (Mar. 1998 ~ Sept. 2000)

Jan. ~ Sept. 2000
- **Non-Photorealistic rendering: Color Paper Mosaic Rendering**
  - Development of a color paper mosaic technique emulating hand-made paper mosaic

Mar. 1998 ~ Dec. 1999
- **Simulation of global illumination by Radiosity**
  - Research and development of an accelerated formfactor algorithm for Radiosity



TECHNICAL SKILLS

Programming	• **C/C++**, Objective-C, C#, Java • **OpenGL**, **OpenGL ES**, OpenVG, OpenCV, GTK+, GDI+, Matlab, Prefuse toolkit, Java3D • MentalRay and RenderMan shader languages
Development tool	• Visual Studio, Source control SW (TortoiseSVN, MS Visual SourceSafe), Xcode, Eclipse
Platform	• Windows, Linux, Mac OS X, Windows Mobile, iPhone OS, Maemo
Software	• MS Office, Maya, 3DMax, Adobe Photoshop, Paint Shop Pro, Premiere, Illustrator
Research	• Well-informed in computer graphics and mobile visualization • Adaptable and quick learner • Efficient problem solver who has high analysis ability

AWARDS & HONORS

Aug. 2010	• 2010 Graduate Student Mentor of the Summer Award from the SURF (Summer Undergraduate Research Fellowships) 2010, Purdue University. *(3 graduate mentors were selected for this award out of 130 student mentors)*
Aug. 2006 ~ Present	• Research Assistantship, Purdue University Rendering & Perceptualization Lab., School of Electrical and Computer Engineering, Purdue University
1999	• Brain Korea 21 Graduate Research Fellowship, Korea Research Foundation
1994 ~ 1997	• Scholarship for 6 semesters from School of Computer Science and Engineering, Chung-Ang University

SCIENTIFIC COMMUNITY SERVICE

Journal Reviewing
- Computer and Graphics

Conference Reviewing
- ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games
- Computational Aesthetics in Graphics, Visualization and Imaging
- Eurographics Workshop on Natural Phenomena
- Eurographics
- Eurographics/IEEE Symposium on Visualization
- IEEE Pacific Visualization Symposium
- IEEE Symposium on Visual Analytics Science and Technology
- IEEE Visualization
- International Conference on Mobile and Ubiquitous Multimedia
- International Symposium on Non-photorealistic Animation and Rendering
- SIGGRAPH

REFERENCES

- Available upon request