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## Education

*Ph.D., Computer Science and Engineering, 2002–2009, POSTECH*  
*Dissertation: Real-Time Perceptual Rendering with Computational Visual Attention Tracking in Virtual Environments*  
*Advisers: Profs. Seungmoon Choi (최승문) and Gerard Jounghyun Kim (김정현)*  
*B.S., Materials Science and Engineering, 1994–2002, POSTECH*  
*Minors: Computer Science and Engineering*

## Experiences

2015– Associate professor, Sungkyunkwan University, Suwon, Republic of Korea.  
2017–2018 Visiting professor, CGV Group, Delft University of Technology (TU Delft), Delft, Netherlands.  
2011–2015 Assistant professor, Sungkyunkwan University, Suwon, Republic of Korea.  
2009–2011 Postdoctoral researcher at Max-Planck-Institut Informatik, Germany  
Advisers: Profs. Dr. Hans-Peter Seidel and Dr. Elmar Eisemann

## Research Interests

Real-time GPU rendering  
Virtual/augmented reality (VR/AR)  
GPU algorithms/computing  
Optical system modeling and rendering  
Visibility algorithms  
Real-time global illumination  
Perception-based information visualization

## Academic Activities

IPC Member *CAD/Graphics 2017, Eurographics 2015, CAD/Graphics 2015, Eurographics 2014, PacificGraphics 2014, IEEE VR 2014, ISMAR 2009*

## Memberships/Services

Memberships ACM, ACM SIGGRAPH, Eurographics, Asia Graphics, KCGS, KHCI, KIPS, KIISE  
Referee for *SIGGRAPH, SIGGRAPH ASIA, SIGCHI, Eurographics, IEEE VIS, EGSR, PacificGraphics, Graphics Interface, ACM TOG, IEEE TVCG, IEEE CGA, Computer Graphics Forum, Computers and Graphics, Visual Computer, IEEE TCSVT, Elsevier JVCI, CAD/Graphics, Graphical Models, J. Supercomputing, IEEE VR/3DUI, IEEE/ACM ISMAR, WorldHaptics, Eurohaptics, IEEE ICCE, Samsung HumanTech Awards*

## Honors and Awards

2014, 2015 *Best Paper Winner*, KCC Conference  
2013 *Best Paper Winner*, KIPS 2013 Conference  
2008 *Best Paper Winner*, HCI Korea 2008 Conference

## Publications: Journal Articles

- Timothy R. Kol, Pablo Bauszat, **Sungkil Lee**, and Elmar Eisemann. MegaViews: Scalable Many-View Rendering with Concurrent Scene-View Hierarchy Traversal *Computer Graphics Forum*, in press, 2018.
- Euijai Ahn, **Sungkil Lee**, and Gerard Jounghyun Kim. Real-time adjustment of contrast saliency for improved information visibility in mobile augmented reality, *Springer Virtual Reality*, in press, 2018.
- Leonardo Scandolo, **Sungkil Lee**, and Elmar Eisemann. Quad-Based Fourier Transform for Efficient Diffraction Synthesis *Computer Graphics Forum (Proc. EGSR 2018)*, 37(4), 1–10, 2018.
- Martin Cadik, Daniel Sykora, and **Sungkil Lee**. Automated Outdoor Depth-Map Generation and Alignment *Elsevier Computers & Graphics*, 74:109–118, 2018
- Sun Geol Baek, Dong Hyun Kang, **Sungkil Lee**, Young Ik Eom. Efficient Graph Pattern Matching Framework for Network-Based In-Vehicle Fault Detection. *Journal of Systems and Software*, 140:17–31, 2018.
- Sunghun Jo, Yuna Jeong, and **Sungkil Lee**. GPU-Driven Scalable Parser for OBJ Models, *Journal of Computer Science and Technology*, 33(2):417–428, 2018.
- Jun Suk Kim, **Sungkil Lee**, and Min Young Chung. Time-Division Random-Access Scheme Based on Coverage Level for Cellular Internet-of-Things in 3GPP Networks, *Pervasive and Mobile Computing*, 44:45–57, 2018.
- Soonhyeon Kwon, Younguk Kim, Kihyuk Kim, and **Sungkil Lee**. Heterogeneous Volume Deformation and Animation Authoring with Density-Aware Moving Least Squares, *Computer Animation and Virtual Worlds*, 29(1):e1784:1–14, 2018.
- Jun Suk Kim, **Sungkil Lee**, Min Young Chung. Efficient Random-Access Scheme for Massive Connectivity in 3GPP Low-Cost Machine-Type Communications, *IEEE Trans. Vehicular Technology*, 66(7), 6280–6290, 2017.
- Yunji Kang, Woohyun Joo, **Sungkil Lee**, Dongkun Shin. Priority-driven spatial resource sharing scheduling for embedded graphics processing units, *Journal of Systems Architecture*, 76:17–27, 2017.
- Kihong Lee, DongWoo Lee, **Sungkil Lee**, and Young Ik Eom. Power-efficient and High-performance Block I/O Framework for Mobile Virtualization Systems, *Journal of Supercomputing*, 73(4):1307–1321, 2017.
- Hyuntae Joo, Soonhyeon Kwon, Sangmin Lee, Elmar Eisemann, and **Sungkil Lee**. Efficient Ray Tracing Through Aspheric Lenses and Imperfect Bokeh Synthesis, *Computer Graphics Forum*, 35(4):99–105 (Proc. EGSR'16), 2016.
- Yuna Jeong, Sangmin Lee, Soonhyeon Kwon, and **Sungkil Lee**. Expressive Chromatic Accumulation Buffering for Defocus Blur. *The Visual Computer (Proc. Computer Graphics International'16)*, 2016.
- Yuna Jeong, Hyuntae Joo, Gyeonghwan Hong, Dongkun Shin, and **Sungkil Lee**. AVIoT: Web-Based Interactive Authoring and Visualization of Indoor Internet of Things. *IEEE Trans. Consumer Electronics* 61(3), 295–301, 2015.
- Myongchan Kim, **Sungkil Lee**, and Seungmoon Choi. Saliency-Driven Real-Time Video-to-Tactile Translation. *IEEE Trans. Haptics* 7(3): 394–404, 2014.
- **Sungkil Lee**, Mike Sips, and Hans-Peter Seidel. Perceptually Driven Visibility Optimization for Categorical Data Visualization. *IEEE Trans. Visualization and Computer Graphics* 19(10): 1746–1757, 2013.
- Yuna Jeong, Kangtae Kim, and **Sungkil Lee**. Real-Time Defocus Rendering with Level of Detail and Subsample Blur, *Computer Graphics Forum*, 32(6):126–134, 2013.
- **Sungkil Lee** and Elmar Eisemann. Practical Real-Time Lens-Flare Rendering, *Computer Graphics Forum*, 32(4):1–6 (Proc. EGSR'13), 2013.
- Matthias Hullin, Elmar Eisemann, Hans-Peter Seidel, and **Sungkil Lee**. Physically-Based Real-Time Lens Flare Rendering. *ACM Trans. Graphics* 30(4): 108:1–9 (Proc. SIGGRAPH'11), 2011.
- Sunghoon Yim, **Sungkil Lee**, and Seungmoon Choi. Evaluation of Motion-Based Interaction for Mobile Devices: A Case Study on Image Browsing. *Elsevier Interacting with Computers*, 23(3):268–278, 2011.
- **Sungkil Lee**, Elmar Eisemann, and Hans-Peter Seidel. Real-Time Lens Blur Effects and Focus Control. *ACM Trans. Graphics* 29(4): 65:1–7 (Proc. SIGGRAPH'10), 2010.
- **Sungkil Lee**, Elmar Eisemann, and Hans-Peter Seidel. Depth-of-Field Rendering with Multiview Synthesis. *ACM Trans. Graphics* 28(5): 134:1–6 (Proc. SIGGRAPH ASIA'09), 2009.
- **Sungkil Lee**, Gerard J. Kim, and Seungmoon Choi. Real-Time Depth-of-Field Rendering Using Anisotropically Filtered Mipmap Interpolation. *IEEE Trans. Visualization and Computer Graphics* 15(3): 453–464, 2009.
- **Sungkil Lee**, Gerard J. Kim, and Seungmoon Choi. Real-Time Tracking of Visually Attended Objects in Virtual Environments and Its Application to LOD. *IEEE Trans. Visualization and Computer Graphics* 15(1): 6–19, 2009 (special section on ACM VRST'07 best papers).
- **Sungkil Lee**, Gerard J. Kim, and Seungmoon Choi. Real-Time Depth-of-Field Rendering Using Point Splatting on Per-Pixel Layers, *Computer Graphics Forum*, 27(7):1955–1962 (Proc. Pacific Graphics'08), 2008.
- **Sungkil Lee** and Gerard J. Kim. Effects of Visual Cues and Sustained Attention on Spatial Presence in Virtual Environments Based on Spatial and Object Distinction. *Elsevier Interacting with Computers*, 20(4–5):491–502, 2008.

- Jane Hwang, Jaehoon Jung, Sunghoon Yim, Jaeyoung Cheon, **Sungkil Lee**, Seungmoon Choi, and Gerard J. Kim. Requirements, Implementation, and Applications of Hand-Held Virtual Reality. *The International Journal of Virtual Reality*, 5(2):59–66, 2006.

### Publications: Conference Papers

- Myongchan Kim, **Sungkil Lee**, and Seungmoon Choi. Saliency-Driven Tactile Effect Authoring for Real-Time Visuotactile Feedback. In *Proc. Eurohaptics'12*, pp. 258–269, 2012.
- **Sungkil Lee**, Gerard J. Kim, and Seungmoon Choi. Real-Time Tracking of Visually Attended Objects in Interactive Virtual Environments. In *Proc. ACM Symp. Virtual Reality Software and Technology (VRST)*, pp. 29–38, 2007 (**best paper nominated, invited to IEEE TVCG**, acceptance ratio=21%).
- **Sungkil Lee**, Gerard J. Kim, Albert Rizzo, and Hyungjin Park. Formation of Spatial Presence: By Form or Content? In *Proc. The 7th Int. Workshop on Presence*, pp. 20–27, 2004.
- **Sungkil Lee**, Gerard J. Kim, and Janghan Lee. Observing Effects of Attention on Presence with fMRI. In *Proc. ACM Symp. Virtual Reality Software and Technology (VRST)*, pp. 73–80, 2004.

### Selected Cover Images

- Practical Real-Time Lens-Flare Rendering. Back cover, *Proc. EGSR 2013*.
- Physically-Based Real-Time Lens Flare Rendering. Back cover, *Proc. SIGGRAPH 2011*.
- Real-Time Depth-of-Field Rendering Using Anisotropically Filtered Mipmap Interpolation. Front cover, *IEEE Trans. Visualization and Computer Graphics*, 15(3).
- Real-Time Depth-of-Field Rendering Using Point Splatting on Per-Pixel Layers. Back cover, *Computer Graphics Forum*, 27(7) (Proc. Pacific Graphics'08).

### Personal Information

*Date of birth:* Nov. 6, 1975

June 21, 2018