Heeseok Oh

Ph.D. in Electrical and Electronic Engineering

Curriculum Vitae

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Research Interests

- Quality of Experience of visual contents
- Image/video quality enhancement
- Deep generative model
- Vision science
- Human Factors on VR/AR/MR

Affiliation

Sept. 2017 – Present

Senior Researcher
SW·Content Research Laboratory
ETRI (Electronics & Telecommunications Research Institute)

March 2017 – Aug. 2017

Senior Engineer
Digital Media & Communications R&D Center
Samsung Electronics

March 2012 – Feb. 2017

Ph.D. Candidate
Electrical and Electronics Engineering
(Supervised by Prof. Sanghoon Lee)
Yonsei University

March 2010 – Feb. 2012

M.S. Candidate
Electrical and Electronics Engineering
(Supervised by Prof. Sanghoon Lee)
Yonsei University

March 2003 – Feb. 2010

B.S. Candidate
Electrical and Electronics Engineering
Yonsei University

Achievements

SCI Journals

- **Heeseok Oh**, Sewoong Ahn, Sanghoon Lee and Alan C. Bovik, "Deep visual discomfort predictor for stereoscopic 3D images," *IEEE Transactions on Image Processing (**TIP**)*, Under Revision.
- **Heeseok Oh**, Sewoong Ahn, Jongyoo Kim and Sanghoon Lee, "Blind deep S3D image quality evaluation via local to global feature aggregation," *IEEE Transactions on Image Processing (**TIP**)*, vol. 26, no. 10, pp. 4923-4936, Oct. 2017.
- **Heeseok Oh**, Jongyoo Kim, Jinwoo Kim, Taewan Kim, Sanghoon Lee and Alan C. Bovik, "Enhancement of visual comfort and sense of presence on stereoscopic 3D images," *IEEE Transactions on Image Processing (**TIP**)*, vol. 26, no. 8, pp. 3789-3801, Aug. 2017.
- **Heeseok Oh** and Sanghoon Lee, "Visual presence: viewing geometry visual information of UHD S3D entertainment," *IEEE Transactions on Image Processing (**TIP**)*, vol. 25, no. 7, pp. 3358-3371, July 2016.
- **Heeseok Oh**, Sanghoon Lee and Alan C. Bovik, "Stereoscopic 3D visual discomfort prediction: a dynamic accommodation and vergence interaction model," *IEEE Transactions on Image Processing (**TIP**)*, vol. 25, no. 2, pp. 615-619, Feb. 2016.
- **Heeseok Oh**, Hojae Lee, Inwoong Lee and Sanghoon Lee, "Cooperative content and radio resource allocation for visual information maximization in a digital signage scenario," *Digital Signal Processing*, vol. 45, pp. 24-35, Oct. 2015.
- Jincheol Park, **Heeseok Oh**, Sanghoon Lee and Alan C. Bovik, "3D visual discomfort predictor: analysis of disparity and neural activity statistics," *IEEE Transactions on Image Processing (**TIP**)*, vol. 24, no. 3, pp. 1101-1114, March 2015.
- **Heeseok Oh** and Sanghoon Lee, "Visually weighted reconstruction of compressive sensing MRI," *Magnetic Resonance Imaging*, vol. 32, no. 3, pp. 270-280, April 2014.
- Hyungkeuk Lee, **Heeseok Oh**, Sanghoon Lee and Alan C. Bovik, "Visually weighted compressive sensing: measurement and reconstruction," *IEEE Transactions on Image Processing (**TIP**)*, vol. 22, no. 4, pp. 1444-1455, April 2013.

Conferences

- Woojae Kim, Haksub Kim, **Heeseok Oh**, Jongyoo Kim and Sanghoon Lee, "No-reference per-

ceptual sharpness assessment for ultra-high-definition images," *IEEE Int'l Conference on Image Processing (ICIP)*, Phoenix, USA, Sept. 2016.

- Junghwan kim, Doyoung Kim, Inwoong Lee, Jongyoo Kim, **Heeseok Oh** and Sanghoon Lee, "Human gait prediction method using Microsoft Kinect," *Int'l Workshop on Advance Image Technology (IWAIT)*, Busan, Korea, Jan. 2016.
- **Heeseok Oh**, Jongyoo Kim and Sanghoon Lee, "3D visual discomfort predictor based on neural activity statistics," *IEEE Int'l Conference on Image Processing (ICIP)*, Quebec City, Canada, Sept. 2015.
- Beom Kwon, Doyoung Kim, Junghwan Kim, Inwoong Lee, Jongyoo Kim, **Heeseok Oh**, Haksub Kim and Sanghoon Lee, "Implementation of human action recognition system using multiple Kinect sensors," *Advances in Multimedia Information Processing (PCM)*, Gwangju, Korea, Sept. 2015.
- **Heeseok Oh** and Sanghoon Lee, "Prediction of visual fatigue from spatiotemporal characteristics in stereoscopic video," *3DTV-Conference*, Zurich, Swiss, Oct. 2012.
- Hyungkeuk Lee, **Heeseok Oh** and Sanghoon Lee, "A new block compressive sensing to control the number of measurements," *IEEE Int'l Conference on Image Processing (ICIP)*, Brussels, Belgium, Sept. 2011.

Patents

- "Method and apparatus for quantifying visual presence," 10-1829580, KR, Feb. 2018.
- "Digital contents identification and apparatus," 10-1437286, KR, Aug. 2014.

Tech. Reports & Standardization Docs.

- Viewing Safety Guideline for UHD (Ultra High Definition) Content, Telecommunications Technology Association, TTAK.KO-10.0859/R1, 2016
- Viewing Safety Guideline for Wearable Content, Telecommunications Technology Association, TTAK.KO-10.0860/R1, 2016
- Viewing Safety Guideline for Portable Content, Telecommunications Technology Association, TTAK.KO-10.0861/R1, 2016
- Viewing Safety Guideline for Vehicle HUD (Head Up Display) Content, Telecommunications Technology Association, TTAK.KO-10.0878/R1, 2016
- IEEE Standard for Quality of Experience (QoE) and Visual-Comfort Assessments of Three-Dimensional (3D) Contents Based on Psychophysical Studies, in IEEE Std. 3333.1.1-2015, 2015
- 3DTV Broadcasting Safety Guideline, Telecommunications Technology Association, TTAK.KO-017.0086/R4, 2015

Awards

- IEEE Silver Best Paper award in IEEE Seoul Section Student Paper Contest, 2016
- IEEE IVMSP Workshop 2013 Volunteer Award, IEEE Signal Processing Society, 2013

Projects

2017–Present	**Development of a method for regulating human-factor parameters for reducing VR-induced sickness** *IITP/MSIT*
2016–2017	**A VR emotion study based on visual perception and artificial intelligence** *NRF*
2015-2017	**New methods for video compression based on perceptual quality prediction** *Samsung Electronics*
2014–2017	**Research on human safety and contents quality assessment for realistic broadcasting** *IITP/MSIP*
2013–2017	**Implementing of action recognition and interaction SW for virtual military exercises** *IITP/MSIP*
2012–2014	**Modeling of quality of experience measurement in 3D contents** *Samsung Electronics*
2012–2013	**Standardization for 3D contents based on human factors** *KEA*
2012–2013	**Construction of reference patterns for quantifying 3D quality** *LG Electronics*

Technical Skills

Computer Languages	C, C++, C♯, Python, Matlab, LaTeX
Frameworks & APIs	Tensorflow, Theano, Numpy, OpenCV