Sunghoon Im

CONTACT INFORMATION

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RESEARCH INTERESTS

- 3D Computer Vision
- Computational Photography
- Deep Learning

EDUCATION

KAIST, Daejeon, Korea

Ph.D. Student, Electrical Engineering, Mar 2016-Present

- Advisor: Prof. In So Kweon

M.S., Electrical Engineering, Feb 2016

- Thesis: "Structure from Small Motion for Hand-held Cameras"
- Advisor: Prof. In So Kweon
- GPA: 3.81/4.3

Sogang University, Seoul, Korea

B.S., Electronic Engineering, Feb 2014

- Summa cum laude (GPA: 3.91/4.3)

RESEARCH EXPERIENCES

Korea-US Disaster Relief Robots
(funded by MOTIE) Oct 2016 – Sep 2017

- Developed vision system for disaster relief robots.

Developing the technology of open composable content editors for realistic media
(funded by ETRI) Mar 2016 – Feb 2017

- Researched an all-around 3D reconstruction technology for realistic VR content.

A novel asymmetric stereo camera system
(funded by Samsung Electronics) Mar 2015 – Feb 2016

- Researched a new camera system for mobile phone.

Global Frontier project
(funded by Center for Integrated Smart Sensors) Aug 2014 – Jun 2015

- Developed depth from defocus algorithm using a dual aperture camera.

PUBLICATIONS

International Journal

1. **Sunghoon Im**, Hyowon Ha, Gyeongmin Choe, Hae-Gon Jeon, Kyungdon Joo and In So Kweon, "Accurate 3D Reconstruction from Small Motion Clip for Rolling Shutter Cameras", *IEEE Transactions on Pattern Analysis and Machine Intelligence* (**TPAMI**), Under review.
2. Jaeheung Surh, Hae-Gon Jeon, Yunwon Park, **Sunghoon Im**, Hyowon Ha and In So Kweon, "Ring Difference Filter for Fast and Noise Robust Depth from Focus", *IEEE Transactions on Pattern Analysis and Machine Intelligence* (**TPAMI**), Under major revision.

3. Seunghak Shin, **Sunghoon Im**, Inwook Shim, Hae-Gon Jeon, and In So Kweon, "Geometry Guided 3D propagation for Depth from Small Motion", *IEEE Signal Processing Letters* (**SPL**), Under review.

International Conference

1. Jaeheung Surh, Hae-Gon Jeon, Yunwon Park, **Sunghoon Im**, Hyowon Ha and In So Kweon, "Noise Robust Depth from Focus using a Ring Difference Filter", *In Proc. of IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR**) [*Spotlight*], Jul 2017.
2. **Sunghoon Im**, Hyowon Ha, Francois Rameau, Hae-Gon Jeon, Gyeongmin Choe and In So Kweon, "All-around Depth from Small Motion with A Spherical Panoramic Camera", *In Proc. of European Conference on Computer Vision* (**ECCV**), Oct 2016.
3. Hyowon Ha, **Sunghoon Im**, Jaesik Park, Hae-Gon Jeon and In So Kweon, "High-quality Depth from Uncalibrated Small Motion Clip", *In Proc. of IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR**) [*Oral*], Jun 2016.
4. Hae-Gon Jeon, Joon-Young Lee, **Sunghoon Im**, Hyowon Ha and In So Kweon, "Stereo Matching with Color and Monochrome Cameras in Low-light Conditions", *In Proc. of IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR**), Jun 2016.
5. **Sunghoon Im**, Hyowon Ha, Gyeongmin Choe, Hae-Gon Jeon, Kyungdon Joo and In So Kweon, "High Quality Structure from Small Motion for Rolling Shutter Cameras", *In Proc. of IEEE International Conference on Computer Vision* (**ICCV**), Dec 2015.
6. **Sunghoon Im**, Gyeongmin Choe, Hae-Gon Jeon and In So Kweon, "Depth from Accidental Motion using Geometry Prior", *In Proc. of IEEE International Conference on Image Processing* (**ICIP**) [*Top 10% paper*], Sep 2015.

Other Publications

1. Jaeheung Surh, Hae-Gon Jeon, Hyowon Ha, **Sunghoon Im** and In So Kweon, "Fast Depth from Defocus with Your Mobile Phone for Synthetic Defocus", *In Proc. of the 28th Workshop on Image Processing and Image Understanding* (**IPIU**), Feb 2016.
2. **Sunghoon Im**, Hae-Gon Jeon, Hyowon Ha and In So Kweon, "Depth Estimation from Light Field Cameras", *In Proc. of the 12th International Conference on Ubiquitous Robots and Ambient Intelligence* (**URAI**), Oct 2015.
3. Dong-jin Kim, Donggeun Yoo, **Sunghoon Im**, Namil Kim, T. Sirinukulwattana and In So Kweon, "Relative Attributes with Deep Convolutional Neural Network", *In Proc. of the 12th International Conference on Ubiquitous Robots and Ambient Intelligence* (**URAI**), Oct 2015.

REVIEWER

- IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2017
- Journal of Institute of Control, Robotics and Systems (ICROS)

AWARDS

- Kim Choong-Ki Award: Research Excellence Award, 2016 Research Performance Evaluation, KAIST EE, Apr 2017
- Best Poster Presentation Award, IPIU 2017 Feb 2017
- Qualcomm Innovation Award 2016, Qualcomm Korea Corp. and KAIST Mar 2016
- Silver prize, 22th HumanTech Paper Award, Samsung Electronics Co., Ltd. Feb 2016
- Best Poster Award, IWRCV 2015 General Chair Nov 2015
- Official Best 10% Paper Selection, ICIP 2015 Organizing Committee Sep 2015
- Design Project Competition(Silver Prize), Sogang University Nov 2013
- Prize for the top first percentile GPA, Sogang University Sep 2011, Feb 2012, Sep 2012

HONORS

- Global Ph.D. Fellowship, National Research Foundation of Korea (about 20K USD/year + Full scholarship for 2+1 years) — Aug 2016 - Present
- International Computer Vision Summer School (ICVSS 2016), Sicily, Italy — July 2016
- Summa Cum Laude, Sogang University — Feb 2014
- Academic Excellence Scholarship, Sogang University — Seb 2012 – Feb 2013
- Scholarship, Korea Scholarship Foundation — Feb 2012 – Feb 2014

IT SKILLS

- Languages: C, C++, MATLAB, LaTeX, Python, Lua