

Byeongju Han

106-509, 50, UNIST-gil, Ulsan 44919, Republic of Korea

✉ bjhan@unist.ac.kr • 🌐 byeongjuhan.github.io

Education

- **Ulsan National Institute of Science and Technology (UNIST)** **Ulsan, Rep. Korea**
Combined MS-PH.D. student in EE *2015–Present*
Advisor: Jae-Young Sim
- **Ulsan National Institute of Science and Technology (UNIST)** **Ulsan, Rep. Korea**
Bachelor of science (B.S.) in EE and CSE *2009–2015*
Graduating class: Summa Cum Laude

Honors and Awards

- **Intensive Program in Artificial Intelligence** **IITP**
Full-tuition scholarship for AI courses in Carnegie Mellon University *2019–2020*
- **NAVER Ph.D. Fellowship** **NAVER**
Naver corporation award *2017*
- **National Science and Engineering Undergraduate Scholarship** **Korean Government**
Full-tuition scholarship for undergraduate students *2013–2014*
- **Overseas Studies Scholarship** **UNIST**
Financial aid for study abroad *2014*
- **IT Master Scholarship** **KT Corporation**
Innovative talent scholarship for innovative ideas to lead the global market *2010*
- **Academic Performance Scholarship** **UNIST**
Admission fee and full tuition support *2009–2011*

Research Interests

- **Reflection removal**
Remove undesired reflection artifacts from glass images taken through a glass plane.
- **Person search**
Search persons matching to a query person on 2D images.
- **Saliency detection**
Detect visually prominent information on 2D images.

Publications

International Journal of Papers.....

- [1] **Byeong-Ju Han** and Jae-Young Sim, "Single image reflection removal using non-linearly synthesized glass images and semantic context," *IEEE Access*, vol. 7, no. 1, pp. 170796-170806, Nov. 2019.
- [2] **Byeong-Ju Han** and Jae-Young Sim, "Glass reflection removal using co-saliency based image alignment and low-rank matrix completion in gradient domain," *IEEE Transactions on Image Processing*, vol. 27, no. 10, pp. 4873-4888, Oct. 2018.
- [3] **Byeong-Ju Han** and Jae-Young Sim, "Saliency detection for panoramic landscape images of outdoor scenes," *Journal of Visual Communication and Image Representation*, vol. 49, pp. 27-37, Nov. 2017.

International Conference Papers.....

- [1] **Byeong-Ju Han***, Kuhyeun Ko*, and Jae-Young Sim, "Context-aware unsupervised clustering for person search," in *Proc. BMVC*, 2021.
- [2] **Byeong-Ju Han**, Kuhyeun Ko, and Jae-Young Sim, "End-to-end trainable trident person search network using adaptive gradient propagation," in *Proc. IEEE ICCV*, 2021.
- [3] **Byeong-Ju Han**, Jae-Won Yang, Oggyu Lee, and Jae-Young Sim, "Context-based matching refinement for person search," in *Proc. APSIPA ASC*, 2021.
- [4] Eunpil Park, **Byeong-Ju Han**, Seungjoon Yang and Jae-Young Sim, "Video saliency detection using adaptive feature combination and localized saliency computation," in *Proc. APSIPA ASC*, Nov. 2018.
- [5] **Byeong-Ju Han** and Jae-Young Sim, "Reflection removal using low-rank matrix completion," in *Proc. IEEE CVPR*, July 2017.

Domestic Conference Papers.....

- [1] **Byeong-Ju Han** and Jae-Young Sim, "Performance improvement for nighttime haze removal via light source color correction," in *Proc. 대한전자공학회*, 2020
- [2] Piljun Jeong, **Byeong-Ju Han**, and Jae-Young Sim, "Method for cloth detection of multiple people using deep learning," in *Proc. IPIU*, 2019
- [3] **Byeong-Ju Han** and Jae-Young Sim, "Reflection removal algorithm using adaptive gradient reliability," in *Proc. IPIU*, 2018.
- [4] **Byeong-Ju Han** and Jae-Young Sim, "Single image based shadow removal algorithm," in *Proc. IPIU*, 2015.

Research Projects

- Diffusion and specular layer serpation from video signal
○ Separate diffusion and specular layers.

ETRI
2019-2019

- **Visual information restoration with extreme underwater environments**
Restore visual information with extreme underwater environments.
 - **Information-coordination technique enabling augmented reality with mobile objects**
Develop a solution for person re-identification minimizing invasion of privacy.
 - **Development of 4D reconstruction and dynamic deformable action model based hyper realistic service technology**
Develop an efficient representation for 4D mesh models.
 - **Glass image processing for 360° large-scale 3D scene reconstruction**
Solve issues on capturing visual data by cameras or lidar through glass.
 - **Image segmentation using color and depth images**
Segment color images using depth images.
 - **Multi-view video stitching with moving cameras with wide baselines**
Stitch multi-view images with wide baselines.

Samsung
2018-2021

IITP
2018-2022

Giga KOREA
2017-2019

NRF
2017-2019

ETRI
2016-2017

NRF
2016-2017

Work Experience

- **Teaching Assistant**
Subject : AI programming II
 - **Teaching Assistant**
Subject : Signals and systems
 - **Teaching Assistant**
Subject : Probability and intro. to random process
 - **Teaching Assistant**
Subject : Signals and systems
 - **Internship in Visual Information Processing Lab.**
Topics : edge detection, optical flow, hands tracking, shadow removal

UNIST
2019

UNIST
2018

UNIST
2017

UNIST
2015-2016

UNIST
2013-2015

Patents

- **Apparatus and method for image processing**
Reflection removal methods
Granted patent No. 10-2027043, 10-2199574

Technical Skills

- **Programming Languages:** Python, Pytorch, Matlab, TeX