

# Byeongju Han

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## Education

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

## Honors and Awards

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- **Intensive Program in Artificial Intelligence** **IITP**  
*Full-tuition scholarship for AI courses in Carnegie Mellon University*  
2019
- **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

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- **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

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### 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

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- 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

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- **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

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

## Technical Skills

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