

Jung-Hyun Byun

Last updated: October 25, 2018

contact

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[GitHub]
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languages

Korean (native)
English (fluent)

programming

C++ (skilled)
Python/CUDA/Matlab/
Java (beginner)

skills

OpenCV, OpenGL,
openFrameworks

Interests

computer vision, computer graphics, machine learning and human-computer interaction
augmented reality, projection mapping, point cloud processing and scene reconstruction

Education

2015.9.1 **Ph.D.** candidate in Computer Science Yonsei University, Korea
–2020.8.31

2011.3.1 **B.Sc.** in Computer Science and Engineering Yonsei University, Korea
–2015.2.28

Projects

2018.09.01 **Integration of Context-aware Pervasive AR Platform for Personal Assistant Implementation** National Research Foundation (NRF), 266K USD/year
–2020.08.31 Role: Principal Investigator & Lead Researcher

- Investigating applicability of deep learning-based spatial context-awareness in an augmented reality environment.
- Investigating integration of scene understanding technologies with projection-based augmented reality.
- Investigating real-time dynamic projection mapping on a pan-tilt platform.

2018.04.30 **Development of hand motion recognition technology based on sensor fusion** Samsung Electronics Company, 48K USD/year
–2018.10.31 Role: Project Manager

- Managed implementation of algorithms for identifying hand postures of workers using IMU sensor data.

2015.11.01 **Pervasive AR interaction platform construction using a mobile projection technology** National Research Foundation (NRF), 264K USD/year
–2018.10.31 Role: Project Manager & Lead Researcher

- Designed a user-perspective rendering algorithm for correcting distortions of projection mapping caused by surface geometry.
- Designed a visual servoing algorithm for accurately controlling pan-tilt servo motors based on rotation axis calibration.

- 2015.08.01 –2017.03.31 **Development of filming and rendering technology based on multi-autonomous flight collaboration for large-scale performance and broadcasting** Korea Institute of Science and Technology (KIST), 26K USD/year
Role: Researcher & Developer
- Designed and implemented scale-adaptive visual object tracking algorithm based on SVM.
 - Developed a Windows program for tracking multiple objects based on epipolar geometry.
- 2015.04.01 –2017.12.31 **Research of vision-based mobile object recognition technology for life logging** Korea Institute of Science and Technology (KIST), 44K USD/year
Role: Researcher & Developer
- Implemented keypoint extraction and descriptor matching algorithms on an Android platform.
 - Developed Android applications for marker-less augmented reality and medicine recognition.

Publications

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Proceedings of peer-reviewed conference papers

Accurate Control of a Pan-tilt System Based on Parameterization of Rotational Motion

Byun, Jung-Hyun, Chae, S., Han, T.,

EG 2018 - Short Papers, The Eurographics Association, 2018

Meet AR-bot: Meeting Anywhere, Anytime with Movable Spatial AR Robot

Park, Y. J., Yang, Y., Ro, H., **Byun, Jung-Hyun**, Chae, S., Han, T. D.,

ACM International Conference on Multimedia (ACM MM), 2018

PAMI: Projection Augmented Meeting Interface for Video Conferencing

Ro, H., Kim, I., **Byun, Jung-Hyun**, Yang, Y., Park, Y. J., Chae, S., Han, T.,

ACM International Conference on Multimedia (ACM MM), 2018

AIR: Anywhere Immersive Reality with User-Perspective Projection

Byun, Jung-Hyun, Chae, S., Yang, Y., Han, T.,

EG 2017 - Short Papers, The Eurographics Association, 2017

A dynamic depth-variable ray-casting interface for object manipulation in ar environments

Ro, H., Chae, S., Kim, I., **Byun, Jung-Hyun**, Yang, Y., Park, Y., Han, T.,

Systems, Man, and Cybernetics (SMC), IEEE International Conference on, 2017

Scale-adaptive tracking with structured output

Byun, Jung-Hyun, Chae, S.-H., Choi, H., Han, T.-D.,

Proceedings of HCI Korea, 2016

Personal Smart Space: IoT based User recognition and Device control

Chae, S., Yang, Y., **Byun, Jung-Hyun**, Han, T.-D.,

Semantic Computing (ICSC), IEEE Tenth International Conference on, 2016

Smart advisor: Real-time information provider with mobile augmented reality

Chae, S., Yang, Y., Choi, H., Kim, I., **Byun, Jung-Hyun**, Jo, J., Han, T.,

Consumer Electronics (ICCE), IEEE International Conference on, 2016

Awards

2018

Best Demo Award

ACM International Conference on Multimedia (ACM MM), 2018