Jung-Hyun Byun

computer scientist majoring in augmented reality

contact

junghyun.ian.byun
@gmail.com

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

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

Projects

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

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

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

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

2015.11.01 –2018.10.31 **Pervasive AR interaction platform construction using a mobile projection technology** National Research Foundation of Korea, 264K USD/year
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, 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, 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 at peer-reviewed conferences

Accurate Control of a Pan-tilt System Based on Parameterization of Rotational Motion
Byun, Jung-Hyun, Chae, S., Han, T.,
Eurographics (EG), The 39th conference, 2018

AIR: Anywhere Immersive Reality with User-Perspective Projection
Byun, Jung-Hyun, Chae, S., Yang, Y., Han, T.,
Eurographics (EG), The 38th conference, 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