

# Efficient 3D Design Drawing Visualization Based on Mobile Augmented Reality

Yeon-Jae Oh\*, Koung-Yook Park\*\*, Eung-Kon Kim\*

\* *Department of Computer Engineering, Sunchon National University  
413 Jungangno, Sunchon-si, Jeollanam-do, Republic of Korea*

\*\* *Division of Culture Content, Chonnam National University  
50 Daehak-ro, Yeosu-si, Jeollanam-do, Republic of Korea*

oksug10@sunchon.ac.kr, zergadiss73@chonnam.ac.kr, kek@sunchon.ac.kr

**Corresponding Author :** *Eung-Kon Kim*

**Abstract**—Recently, in manufacturing, machinery, construction and shipbuilding [3] industry, diversified researches of visualizing design documents without difficulty utilizing augmented reality technology have been performed. In this paper, we propose an efficient 3D design document visualization technique based on mobile augmented reality. Proposed technique first recognizes design document region, and only performs image tracking in its region. Through performance analysis, it could be seen that in technique being suggested in this study, drawing recognition time was reduced by 4-33%, drawing matching recognition rate was increased by 5-15% and number of output frame per second was increased by 7-8 frames per second.

**Keyword**—Smartphone, Mobile Reality, 3D Structures, Drawing recognized



**Yeon-Jae Oh**

She received the B.S. degree from Korea National Open University, Korea, in 2007, her M.S. degree from department of computer science, Sunchon National University, Korea, in 2009. She is currently a Ph.D. student in computer science at the Sunchon National University, Korea, Her current research interests include augmented reality, image processing, computer graphics.



**Kyoung-Wook Park**

He received the B.S. degree from Sunchon National University, Suncheon, Korea, in 1997, his M.S degree from department of computer science and statistics, Chonnam National University, Gwangju, Korea, in 1999, his Ph.D. degree from department of computer science, Chonnam National University, Gwangju, Korea, in 2004. His current research interests are parallel and distribution processing, graph theory, theory of



**First A. Author** (M'76–SM'81–F'87) and the other authors may include biographies at the end of regular papers. Biographies are often not included in conference-related papers. This author became a Member (M) of IEEE in 1976, a Senior Member (SM) in 1981, and a Fellow (F) in 1987. The first paragraph may contain a place and/or date of birth (list place, then date). Next, the author's educational background is listed. The degrees should be listed with type of degree in what field, which institution, city, state, and country, and year degree was earned. The author's major field of study should be lower-cased.