

# Hybrid Cloud Computing for User Location-aware Augmented Reality Construction

Ming-Shen Jian \*, Yi-Chang Wang, Bo-Han Wu, Yu-En Cheng

*Department of Computer Science and Information Engineering, National Formosa University*

*No.64, Wunhua Rd., Huwei Township, Yunlin County, Taiwan*

[jianms@nu.edu.tw](mailto:jianms@nu.edu.tw), [jouk202@gmail.com](mailto:jouk202@gmail.com), [40343211@gm.nfu.edu.tw](mailto:40343211@gm.nfu.edu.tw), [f09789456123@gmail.com](mailto:f09789456123@gmail.com)

**Abstract**—In this paper, the Hybrid Cloud Computing for User Location-aware Augmented Reality Construction is proposed including three layers: Estimation Layer, Scenario Layer, and Presentation Layer. Based on “Angle of the Arrival” position method in Estimation Layer, the location-aware information of individual user can be considered. According to Scenario Layer, the various augmented reality contents can be rapidly and dynamically re-established. Three types of virtual machines including scenario virtual machine, material and physical parameter database, and re-direction management are proposed Based on the proposed system structure, the cost of AR construction can be reduced for the various display devices.

**Keyword**—Augmented Reality, Cloud Computing, Edge Computing, Location Aware, Game



**Ming-Shen Jian** is an assistant professor of Dept. Computer Science and Information Engineering at National Formosa University. Ming-Shen Jian’s current research interests are in the area related to IOT application, Big Data, optimal solution, Intelligent System, and cloud computing. He received B.S. degree at Electrical and Control Engineering in National Chiao Tung University and Ph.D. at the Department of Computer Science and Engineering of the National Sun Yet-Sen University in Taiwan, 2007, investigating resource management in 3G mobile communication systems.



**Yi-Chang Wang** is a master degree student at Dept. of Computer Science and Information Engineering in National Formosa University. His current research interests are in the area related to IOT application and Intelligent System. He received B.S. degree at Computer Science and Information Engineering at National Formosa University, 2017.



**Bo-Han Wu** is an undergraduate student of Dept. Computer Science and Information Engineering at National Formosa University. His current research interests are in the area related to IOT and Cloud Computing. His interests are programing some code. But he prefers manage that just like prosecution to program code. He prefers studying some different language too.



**Yu-En Cheng** is a master degree student of Dept. Computer Science and Information Engineering at National Formosa University. Her current research interests are in the area related to IOT and Information security. She received B.S. degree at Computer Science and Information Engineering at I-Shou University, 2017.