

# Enabling Robust Delay-Sensitive Cloud-Assisted Blockchain Mining via Econometric Methods

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6th Floor, Yellow Zone  
Yeung Kin Man Academic Building  
City University of Hong Kong  
83 Tat Chee Avenue  
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## ABSTRACT

Blockchain has recently been used in lots of applications such as cryptocurrency, Internet of Things (IoT), and global logistics. However, the use of blockchain in mobile devices is definitely limited due to the fact that the mining process takes a lot of computation resources. In order to tackle this problem, cloud computing platforms can be used as a potential solution for offloading the mining jobs from the mobile devices. Based on this motivation to use cloud computing resources for mobile mining, new algorithms inspired by resource allocation are needed and several algorithms have been proposed up to now based on auction mechanisms in order to guarantee truthful operations. However, we define conventional auction-based approaches may not be suitable in some cases. First of all, in this presentation, we show the case where auction-based approach may not be truthful in cloud-assisted mobile blockchain mining. After that, we show our proposed new delay-sensitive algorithm that can deal with this problem in cloud-assisted mobile blockchain mining. Lastly, we show the data-intensive simulation results to confirm the benefits of our proposed algorithm.

## BIOGRAPHY

Joongheon Kim (M'06--SM'18) has been with Chung-Ang University, Seoul, Republic of Korea, where he is an Associate Professor (2016 - Present). He received his bachelor degree (2004) and master degree (2006) in Computer Science and Engineering from Korea University, Seoul, Republic of Korea; and his Ph.D. degree (2014) in Computer Science from the University of Southern California (USC), Los Angeles, California, USA. In industry, he was with LG Electronics - Seocho R&D Campus as a research engineer (Seoul, Republic of Korea, 2006--2009), InterDigital as an intern (San Diego, California, USA, 2012), and Intel Corporation as a systems engineer (Santa Clara in Silicon Valley, California, USA, 2013--2016). His research interests span the areas of advanced computing systems such as distributed deep learning platforms, privacy-preserving learning platforms, adaptive video streaming, contents caching, energy-efficient computing, low-power design, and cellular/wireless architectures. He is a senior member of the IEEE (since 2018); and a member of the ACM (since June 2014) and IEEE Communications Society. He was awarded USC Annenberg Graduate Fellowship with his Ph.D. admission from USC (2009).

**All are welcome!**



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