

# 先端科学技術研究科 修士論文要旨

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論文題目	Reputation-Based Reward Distribution Mechanism for Blockchain-Based Scientific Paper Publishing Systems ブロックチェーンを用いた科学技術論文出版システムにおけるレピュテーションに基づく報酬分配方式		
要旨			
<p>In traditional publishing systems of scientific papers, publishing companies serve as intermediaries between authors, reviewers, and readers. The existence of publishing companies usually introduces heavy monetary cost to both readers and authors, and delay the proliferation of new scientific findings. To solve these problems, research efforts have been devoted to seeking alternatives of publishing companies, among which blockchain-based publishing systems have attracted considerable attention. One representative blockchain-based publishing system is called EUREKA, which relies on a reward system to distribute reward to the participants involved in the publication process. The EUREKA reward system distributes almost constant amounts of reward to reviewers without considering the quality of the reviews and the reputation of reviewers, resulting in poor incentive for reviewers and unfair reward distribution. In this study, we aim to improve the EUREKA reward system by incorporating the reputation of reviewers and the quality of their reviews. To achieve this goal, we first design a reputation evaluation scheme, which calculates the reputation of a reviewer based on several metrics, like the number and quality of published papers and the number and quality of reviews. We then propose a reputation-based reward system that enables the reward to be distributed to reviewers based on their reputations and the quality of their reviews. Through simulations of the publication process using Web of Science data, we show the difference of reward distribution between the EUREKA-based method and the proposed method.</p>			