## Conservation Genetic Algorithm to Solve the Ecommerce Environment Logistics Distribution Path Optimization Problem

Rui FU\*, Mohammed Abdulhakim Al-Absi\*, Ahmed Abdulhakim Al-Absi\*\*,

Hoon Jae Lee\*\*\*

\*Division of Information and Communication Engineering, Dongseo University, 47 Jurye-ro, Sasang-gu, Busan 47011, Republic of Korea

\*\*Department of Smart Computing, Kyungdong University 46 4-gil, Bongpo, Gosung, Gangwon-do, 24764, Republic of Korea

\*\*\*Division of Information and Communication Engineering, Dongseo University, 47 Jurye-ro, Sasang-gu, Busan

47011, Republic of Korea

<u>furui.qilianteng@gmail.com, Mohammed.a.absi@gmail.com,</u> absiahmed@kduniv.ac.kr, hjlee@dongseo.ac.kr

*Abstract*— E-commerce is a business activity that uses modern information technology to process cash flow and logistics to achieve transactions. With the increase of evolutionary algebra, saving genetic algorithm and genetic algorithm all tend to be more optimal. The evolutionary starting point of saving genetic algorithm is much lower than the evolutionary starting point of genetic algorithm. The evolutionary algebra and the population size in the conservation genetic algorithm also have certain influence on the performance of the algorithm. The maximum running distance of the vehicle is different when the trucks have distance limitation and have no-distance limitation. This paper can improve the efficiency of logistics distribution and shorten the distribution distance, which is of great significance for saving logistics costs and improving customer service level.

Keyword- logistics and distribution, vehicle routing problem, saving algorithm, logistics costs



**Rui FU** was born in China 1990, received her (MS) degree in System Theory from Qingdao University -China in 2012-2015. Currently, She is a Ph.D. student in the Department of Information and Communication Engineering at Dongseo University, Korea. Her research interests include Logistics Transportation and Mathematics.



**Mohammed Abdulhakim Alabsi** was born in Yemen 1987, received his BS in Computer Application from Bangalore University in India. He earned his (MS) degree at Dongseo University, South Korea in 2018. Currently, he is a PhD. student in the Department of Information and Communication Engineering at Dongseo University, South Korea. His research interests include IoT, VANET, UAV, artificial intelligence, cryptology, network security, computer networks and digital communications.



Ahmed Abdulhakim Al-Absi was born in Yemen 1984, he is an Assistant Professor and Head of Smart Computing Department at Kyungdong University – Global Campus in South Korea. He earned his PhD in Ubiquitous Computing at Dongseo University, South Korea in 2016. His research interests include database systems, big data, hadoop, cloud computing, distributed systems, parallel computing, high-performance computing, VANET, and bioinformatics. He received a Master of Science (MS) degree in Information Technology at University Utara Malaysia, Malaysia in 2011 and a Bachelor of Science (BS) degree in Computer Applications at Bangalore University, India in 2008.



**HoonJae Lee** was born in Korea 1962, received his BS, MS, and Ph.D. degrees in electronic engineering from Kyungpook National University, Daegu, Rep. of Korea, in 1985, 1987, and 1998, respectively. He is currently a professor in the Department of Information Communication Engineering at Dongseo University. His current research interests include Password Theory, Network Security, Side-Channel Attack, and Information Communication/Information Network.