

Multi-Objective Optimization Based on Adaptive Evolution Algorithm for Disassembly Line Network Problems

Ming-Shen Jian, Wei-Sin Wu, Yi-Hsuan Lin, Xin-Mei Wu, Peng-Wen Wang

Cloud Computing and Intelligent Service Lab., Dept. of CSIE, National Formosa University, Taiwan
 jianms@nfu.edu.tw, 40943103@gm.nfu.edu.tw, 40943104@gm.nfu.edu.tw, 40943102@gm.nfu.edu.tw,
 40943101@gm.nfu.edu.tw

Abstract—In recent years, the demand for disassembly is increasing. The variability of the product and the degree of damage that occurs during the disassembly process. In this research, the optimized mathematical programming models are proposed based on the transformed AND / OR graphic(TAOG) as a priority relation between jobs. To find the optimal solution, different steps and types of the evolution algorithm can be established via individual thread procedures and various virtual machines in cloud. The proposed improvement phase based on the fitness evaluation result according to different crossover methods can enhance the performance of the convergence.

Keyword—Multi-Objective, Evolution Algorithm, disassembly line, optimal solution.



Ming-Shen Jian was born in Kaohsiung City, Taiwan in 1978. He received the B.S. from the National Chiao Tung University, HsinChu, and Ph.D degrees in Computer Science and Engineering from the National Sun Yat-sen University, Kaohsiung, Taiwan in 2007. From 2018, he was an Associate Professor and director with the National Formosa University Cloud Computing and Intelligent System Laboratory. Currently he is also an IEEE Senior Member. Since 2009, he has been an Assistant Professor with the Computer Science and Information Engineering Department, National Formosa University. He is the author of four books, more than 50 articles, and at least 15 invention patents. His research interests include IOT development and application, Big Data, Optimal Solution, Intelligent System, and Cloud Computing. He was a Secretary of the Taiwan Association of Cloud Computing. Dr. Jian was a recipient of the IEEE sponsored international conference Paper Award in 2016, 2017, and 2018.



Wei-Sin Wu was born in 2002, Taiwan. Currently she is an B.S. degree student of Dept. Computer Science and Information Engineering at National Formosa University. Her current research interests are in the area related to Artificial Intelligence, and Cloud Computing. She joins the Cloud Computing and Intelligent System Lad. (CCIS Lab.) from 2021



Yi-Hsuan Lin was born in 2002, Taiwan. Currently she is an B.S. degree student of Dept. Computer Science and Information Engineering at National Formosa University. Her current research interests are in the area related to Big Data, and Artificial Intelligence. She joins the Cloud Computing and Intelligent System Lad. (CCIS Lab.) from 2021.



Xin-Mei Wu was born in 2001, Taiwan. Currently she is an B.S. degree student of Dept. Computer Science and Information Engineering at National Formosa University. Her current research interests are in the area related to Big Data, and Artificial Intelligence. She joins the Cloud Computing and Intelligent System Lad. (CCIS Lab.) from 2021.



Peng-Wen Wang was born in 2002, Taiwan. Currently she is an B.S. 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 Artificial Intelligence. She joins the Cloud Computing and Intelligent System Lab. (CCIS Lab.) from 2021.