

54th CIRP Conference on Manufacturing Systems

Cooperative Co-evolution and Data Mining for Planning Disassembly Sequence and Estimating Time

Yu-Yao Guo[#], Lei Wang^{#, *}, Ze-Lin Zhang^{*}, Xu-H Xia, Hui-Xian Zhu

Key Laboratory of Metallurgical Equipment and Control Technology, Ministry of Education, Wuhan University of Science and Technology, Wuhan 430081, China

[#] These two authors contributed equally to this work and should be considered co-first authors.

^{*} Corresponding author. *E-mail address:* candywang@wust.edu.cn, zhangzelin@wust.edu.cn

Abstract

Few existing methods can simultaneously confirm sequence shortest and operation time minimum of target parts disassembly for retired products. Aiming to filling this research gap, this paper proposes a cooperative co-evolution (CC) and data mining (DM) based method for planning disassembly sequence and estimating operation time, in which CC is used to search the shortest disassembly sequence (SDS). Modular Arrangement of Pre-determined Time Standard (MOD) is employed to estimate the operation time of SDS, then DM is used to further adjust this operation time. A real-world use case verified the effectiveness of the proposed method.

© 2021 The Authors. Published by Elsevier B.V.

This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>)

Peer-review under responsibility of the scientific committee of the 54th CIRP Conference on Manufacturing System

Keywords: Remanufacturing; Multi-objective disassembly sequence planning; Disassembly time calculation; Cooperative coevolution algorithm; Data mining
