A Hybrid Genetic Algorithm for Assembly Line Balancing In Automotive Sector

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Abstract : This paper presents a solution for optimizing the cycle time in an assembly line with human-robot collaboration and diverse operators. A genetic algorithm with tailored parameters is used to address the assembly line balancing problem in the automobile sector. A mathematical model is developed, depicting the problem. Currently, the firm runs on the largest candidate rule; however, it causes a lag in orders, which ultimately gets penalized. The results of the study show that the proposed GA is effective in providing efficient solutions and that the cycle time has significantly impacted productivity.