Automated Crew Scheduling Method to Minimize the Number of Crew Required

Satoshi KATO   Taichi NAKAHIGASHI   Tatsuya KOKUBO

Railway companies produce crew schedules when they revise their train timetables. Currently, these schedules are produced manually by experts. However, this manual task is time-consuming. It is therefore necessary to develop a system that supports crew scheduling using an automated algorithm. We propose an automated crew scheduling algorithm based on mathematical optimization to minimize the number of crew required. The results of a computational experiment using real data from a railway line confirmed that the proposed algorithm can quickly generate an efficient crew schedule in terms of the number of crew required.