

## **Biogeography based optimization (BBO) algorithm to minimise non-productive time during hole-making process**

### **ABSTRACT**

Tool path optimization in today's manufacturing systems is one of the crucial issues in hole-making machining. This paper presents an evolutionary optimization algorithm based on geographic distribution of biological organism to deal with hole-making process problem. The proposed approach tackles the sequencing problem when several holes must be drilled by means of different tools to reach their desired size. The aim of this study is to minimise the non-productive time, including tool travelling time and tool switching time, by employing biogeography based optimization algorithm, since the problem is considered as NP-hard. The performance of proposed algorithm is evaluated based on various test problems adopted from the literature. The obtained results demonstrate that the proposed algorithm can efficiently improve the solution quality in terms of minimising non-productive time.

**Keyword:** Hole-making process; Non-productive time; Biogeography based optimization (BBO)