

Representations for Evolutionary Computation Derived from Group Theory

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Abstract

Evolutionary Computation consists of a family of search and optimization algorithms that are radically simplified versions of the biological theory of evolution. One of the most profitable areas for research in evolutionary computation is the representation used for members of an evolving population. In the biological metaphor, the DNA for your artificial organisms. The representation implicitly specifies both the membership and connectivity of the search space. This talk will briefly introduce evolutionary computation and then discuss several recent developments of representations that arise from algebraic group theory. Several useful representations will be presented in the context of the problems they solve.