

Towards an Adaptive Multimeme Algorithm for Parameter Optimisation Suiting the Engineers' Needs

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Abstract. Important factors for the easy usage of an Evolutionary Algorithm (EA) are numbers of fitness calculations as low as possible, its robustness, and the reduction of its strategy parameters as far as possible. Multimeme Algorithms (MMA) are good candidates for the first two properties. In this paper a cost-benefit-based approach shall be introduced for the adaptive control of both meme selection and the ratio between local and global search. The latter is achieved by adaptively adjusting the intensity of the search of the memes and the frequency of their usage. It will be shown in which way the proposed kind of adaptation fills the gap previous work leaves. Detailed experiments in the field of continuous parameter optimisation demonstrate the superiority of the adaptive MMA over the simple MA and the pure EA.