

博士论坛

## 一种环境辨识记忆动态贝叶斯优化算法

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**摘要** 为了使贝叶斯优化算法(BOA)具有动态优化能力,提出了基于环境辨识的记忆策略(EIMS)。该策略利用概率模型对优良解的描述能力,简化了记忆管理过程并减少了记忆所占内存空间。设计了最优个体+采用平均的环境辨识算法。实验结果表明,通过对历史信息的记忆和利用,EIMS能够使BOA有效求解动态优化问题,算法的性能在循环、循环+噪声以及随机动态环境下均显著优于重启式BOA。

**关键词** [贝叶斯优化算法](#) [概率模型](#) [环境辨识](#) [动态优化问题](#)

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## Dynamic Bayesian optimal algorithm via environment identification memory strategy

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### Abstract

In order to make Bayesian Optimal Algorithm (BOA) be able to optimize dynamically, an Environment Identification based Memory Strategy (EIMS) is proposed. Using this strategy, the memory management is simplified and the space used to store memory is saved. Both of these are benefit by the fact that probability model can represent the distribution of high-quality solutions. An environment identification technology named best individual + samples averaging method is designed. Experimental results show that, by recording and reusing the memory, the EIMS can effectively enhance the BOA to solve dynamic optimal problems. In addition, no matter how the environment changes, the corresponding dynamic BOA can always significantly overcome restart BOA.

**Key words** [Bayesian optimal algorithm](#) [probability model](#) [environment identification](#) [dynamic optimal problem](#)

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