

DEMO article

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Abstract

Pandoc template for my weekly report in my research group meeting

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1 Outline

- Pandoc template for my weekly report in my research group meeting
- What's in this demo:
 - CJK font: 中文字体
 - Footnote
 - Figures, like Fig. 1
 - Tables, like Table. 1
 - Equations, like Eq. 1
 - Algorithms
 - IEEE style bibliography[1, 2, 3, 4, 5, 6]
 - Code

2 Use this template

- Edit meta.yaml for title, author, date
- Edit custom.latex to add custom latex packages
- Edit makefile for markdown file name, target pdf file name, font...
- Edit beamer.tex to modify the beamer template
- Dependency:
 - pandoc
 - pandoc-crossref
 - biber
 - xelatex

3 DEMO

3.1 中文字体, footnote

马上相逢揖马鞭，客中相见客中怜。欲邀击筑悲歌饮，正值倾家无酒钱¹。

3.2 Figure

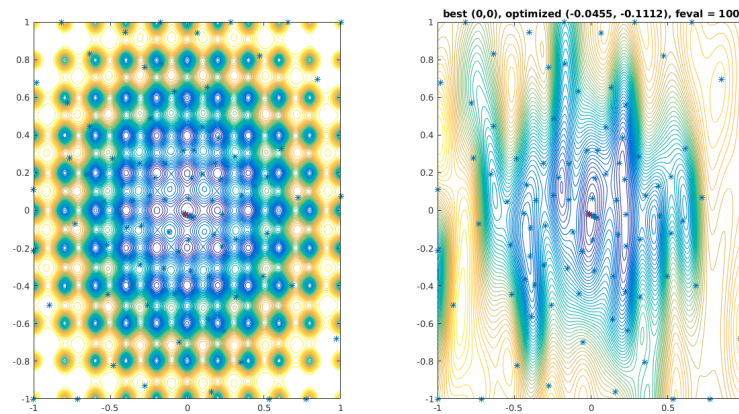


Figure 1: Ackley function and the model after optimization

¹李白诗一首。

3.3 Table

Table 1: A Table

Language	Good or Bad
Haskell	Good
C++	Good
PHP	Bad

3.4 Equation

$$\begin{cases} \mu(\mathbf{x}) &= \mu_0(\mathbf{x}) + \mathbf{k}(\mathbf{x})^T (\mathbf{K} + \sigma^2 \mathbf{I})^{-1} (\mathbf{y} - \mathbf{m}) \\ \sigma^2(\mathbf{x}) &= k(\mathbf{x}, \mathbf{x}) - \mathbf{k}(\mathbf{x})^T (\mathbf{K} + \sigma^2 \mathbf{I})^{-1} \mathbf{k}(\mathbf{x}) \\ LCB(\mathbf{x}) &= \mu(\mathbf{x}) - \kappa \sigma(\mathbf{x}) \end{cases} \quad (1)$$

3.5 Algorithm

Algorithm 1 Bayesian Optimization

- 1: Initial Sampling
 - 2: Construct GP model
 - 3: **for** $t = 1, 2, \dots$ **do**
 - 4: Find \mathbf{x}_t that minimizes LCB
 - 5: Sample $y_t = f(\mathbf{x}_t) + \epsilon_t$
 - 6: Update GP model
 - 7: **end for**
 - 8: **return** best $f(\mathbf{x})$ recorded during iterations
-

3.6 Code

```
#include <iostream>
using namespace std;
int main()
{
    cout << "Whatever!" << endl;
    return EXIT_SUCCESS;
}
```

References

- [1] I. Couckuyt, T. Dhaene, and P. Demeester, "ooDACE toolbox: A flexible object-oriented kriging implementation.," *Journal of Machine Learning Research*, vol. 15, no. 1, pp. 3183–3186, 2014.
- [2] C. E. Rasmussen, "Gaussian processes for machine learning," 2006.
- [3] B. Shahriari, K. Swersky, Z. Wang, R. P. Adams, and N. de Freitas, "Taking the human out of the loop: A review of bayesian optimization," *Proceedings of the IEEE*, vol. 104, no. 1, pp. 148–175, 2016.
- [4] M. A. Gelbart, "Constrained bayesian optimization and applications," PhD thesis, 2015.
- [5] B. Liu, D. Zhao, P. Reynaert, and G. G. Gielen, "Gaspad: A general and efficient mm-wave integrated circuit synthesis method based on surrogate model assisted evolutionary algorithm," *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*, vol. 33, no. 2, pp. 169–182, 2014.
- [6] A. Melkumyan and F. Ramos, "Multi-kernel gaussian processes," in *IJCAI Proceedings-International Joint Conference on Artificial Intelligence*, vol. 22, 2011, p. 1408.