
# 2019-03-07

Nankai-Baidu
Joint Laboratory


Parallel and Distributed
Software Technology Lab

- simplified fixed Hessian method

  C++编程实现

  Privacy-Preserving Logistic Regression Training

  Charlotte Bonte, and Frederik Vercauteren. [KU Leuven] 2018

  Bug

- Andrew Ng CS229 Lecture notes 1

  Exercise 4: Logistic Regression and Newton's Method

  Matlab  code

  Octave syntax is largely compatible with Matlab.

- simplified fixed Hessian method

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  Charlotte Bonte, and Frederik Vercauteren. [KU Leuven] 2018

  Bug

- Minka, Thomas P. 2007

  A comparison of numerical optimizers for logistic regression

  Matlab code (requires lightspeed): logreg

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  Bug : 可能是建立模型后对模型的评估这部分逻辑

- Andrew Ng :

```
% Calculate J (for testing convergence)
J(i) =(1/m)*sum(-y.*log(h) - (1-y).*log(1-h));
```

  Thomas P. Minka :

```
% compute the log likelihood
% function p = logProb(x,w)
% x is premultiplied by y
s = w'*x;
p = -log(1 + exp(-s));
i = find(s > 36);
if ~isempty(i)
  p(i) = -exp(-s(i));
end
p = sum(p);
% try to maximize the log likelihood
```

- 在明文上实现算法逻辑：C++单个文件
  在明文上实现算法逻辑：C++ Makefile 工程
  在密文上实现算法逻辑：C++ Makefile 工程
  （不容易发现错误）

- 在明文上实现算法逻辑：Matlab代码或Python代码
  在明文上实现算法逻辑：C++ 单个文件
  在明文上实现算法逻辑：C++ Makefile 工程
  在密文上实现算法逻辑：C++ Makefile 工程
  （容易验证算法逻辑）

# 存在的问题

- Privacy-Preserving Logistic Regression Training

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  想法巧妙、新颖 算法收敛速度可能较慢 实际用处可能不高