

Code Reading Assignment

A good way to learn and improve our programming skills is to read and understand others' programs. Please download the following source code and read the code by yourself. Then write two code-reading reports (i.e., CRReport_V1.pdf and CRReport_V2.pdf) about what you have learned and what you think are good programming skills. The programming skills may include **good OOP design styles, design patterns, template-based generic programming, and any other coding skills** that you enjoyed during the code reading process. Please note the following deadlines:

(1) The first report (CRReport_V1)

(a) Submission deadline: **May 5th (Thursday)**.

(b) The content may focus on **how to compile and run the code, basic OOP-related programming methods, and any specific coding skills (特有的编程技巧)**.

(2) The second report (CRReport_V2)

(a) Submission deadline: **June 5th (Sunday)**.

(b) The content should be an improved version with improved contents, including **more advanced programming skills, key design principles (设计原理), and what you have learned during code reading. Program flow charts (程序流程图), program structure diagrams (程序结构图), and UML class diagrams may also be included for better explaining the source codes.** It is suggested to find some software tools, and learn to use the tools for drawing these charts and diagrams. Please see the attached "Software Design Document.pdf" for more detailed information on how to write a formal document (some parts are marked as optional, which are not mandatory).

Mandatory code reading assignment:

Choose one from the following projects (从如下项目中任意选择一个)

(1) Google open source project "LiquidFun": 2D rigid-body and fluid simulation
C++ library

(a) Introduction: <http://google.github.io/liquidfun/>

(b) Download: <https://github.com/google/liquidfun/releases>

(c) Build & Run: <http://google.github.io/liquidfun/Building/html/index.html>

(2) Google open source project "protocol buffers"

(a) Introduction: <https://developers.google.com/protocol-buffers/>

(b) Download:

<https://developers.google.com/protocol-buffers/docs/downloads>

(3) Boost C++ Libraries

(a) <http://www.boost.org>

(b) As Boost library is huge, you may freely choose one section of the source code for reading, understanding, and practice using the library.

E.g., "Boost Pool Library":

http://www.boost.org/doc/libs/1_60_0/libs/pool/doc/html/index.html

or "Boost.Python":

http://www.boost.org/doc/libs/1_60_0/libs/python/doc/index.html

or "In Place Factory, Typed In Place Factory":

http://www.boost.org/doc/libs/1_60_0/libs/utility/in_place_factories.html

(4) Open source project "TensorFlow" by Google Brain Team:

(a) Website: <https://www.tensorflow.org/>

(b) Only the reading on the C++ part is needed. Python part is not required.

(5) Deep learning framework "Caffe" from Berkeley Vision and Learning Center:

(a) Introduction: <http://caffe.berkeleyvision.org/>

(b) Download: <https://github.com/BVLC/caffe>

(c) Only the reading on the C++ part is needed. Python or CUDA parts are not required.

TIPS (提示): You may want to install some software to aid the code reading, e.g., Understand, SourceInsight, etc. Please search the software using Google/baidu, then download and install the software by yourself.