- **Eigen**

  Introduction: C++ template library for linear algebra: matrices, vectors, numerical solvers, and related algorithms.

  Installation: In order to use **Eigen**, you just need to download and extract **Eigen**'s source code (see the wiki for download instructions). In fact, the header files in the **Eigen** subdirectory are the only files required to compile programs using **Eigen**. The header files are the same for all platforms. It is not necessary to use CMake or install anything.

  Tutorial: https://eigen.tuxfamily.org/dox/GettingStarted.html

- **Sophus**

  Introduction: C++ implementation of Lie Groups

  Installation:
  git clone http://github.com/strasdat/Sophus.git
  then go to the folder
  mkdir build
  cd build
  cmake ..
  make

  Tutorial: Please refer to page 78-80 of slambook-en.pdf

- **OpenCV**

  Introduction: Computer vision library

  Installation: Install OpenCV C C++ in Ubuntu 18.04 LTS : Step by Step Guide

  Tutorial:
  Full tutorial: https://docs.opencv.org/master/d9/df8/tutorial_root.html

- **Pangolin**

  Introduction: Library based on OpenGL, for the visualization of trajectory

  Installation: Follow the instructions in README:
  https://github.com/stevenlovegrove/Pangolin

  Tutorial: Please refer to page 61-63 of slambook-en.pdf

- **Ceres**

  Introduction: C++ library for modeling and solving large, complicated optimization problems.
  Installation: http://ceres-solver.org/installation.html
  Tutorial: http://ceres-solver.org/tutorial.html