# CMake: A very simple introduction

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**IMAG** 

What is CMake?

- A case study
  - CMakeList explication



P. ZHENG (IMAG) CMake short tuto

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  - CMakeList explication

# What is CMake?

#### **CMake**

CMake is a cross-platform, open-source build system. This tool will allow you to test, compile and create packages of your source code.

#### Run CMake

In order to run a CMake projet we do:

- mkdir build
- cd build
- o cmake ..
- make



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# A case study

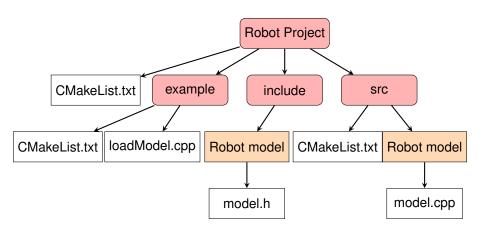


Figure: A classical robotic C++ project structure

# Illustrative case

### Project organization

The main project is called "robot project", in which we create sub-directory such as "example", "include", "src" in order to keep our codes modular.

#### **CMakeList**

The CMakeList file is very important of several useful design patters for CMake. In this file we precise with "flags" to let cmake know how to build this project.

### Illustrative case

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# First CMakeList in "Robot Project"

#### Explication

We explain the flags written in CMakeList in following:

- cmake\_minimum\_require(VERSION 3.11) Required version
- project(Robot6R) Name of this project
- find\_package(cartin REQUIRED COMPONENTS roscpp rospy .....) Find the external package used in this project
- include\_directories(include \$ {CATKIN\_INCLUDE\_DIRS ... ) Include the header of external package
- ADD\_SUBDIRECTORY(examples src include) add other sub-directory to project



### CMakeList in "src"

### Explication

In src, we write our own library

- set(HEADER\_LIST "give the path to the project include directory") In order to include our header to the src
- add\_linbrary(robot6R\_library) Name of this package or library
- find\_package(cartin REQUIRED COMPONENTS roscpp rospy .....) Find the external package used in this project
- include\_directories(include \$ {CATKIN\_INCLUDE\_DIRS ... ) Include the header of external package
- ADD\_SUBDIRECTORY(examples src include) add other sub-directory to project

