

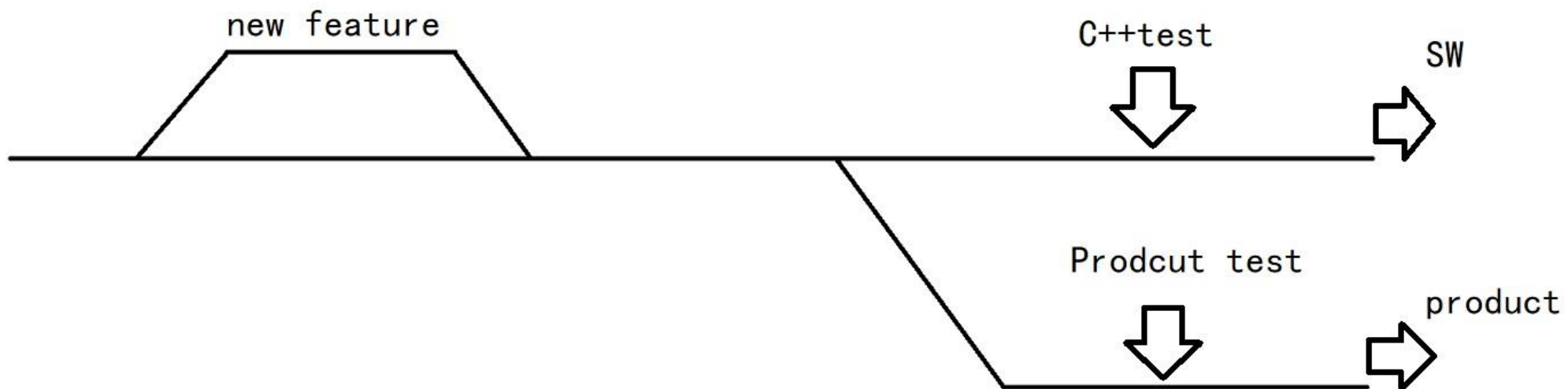
C++test

李卓

background

- 机器人有很多传感器，用于对未知环境做出判断。
- 由于实验环境条件的限制和对复杂环境的未知，很难在实验室模拟现实中的环境。不仅成本而且覆盖率低。
- 基于Googletest框架的cppunit可以很好的模拟、仿真传感器的各种组合输入，成本低、覆盖率高。

软件测试/产品测试

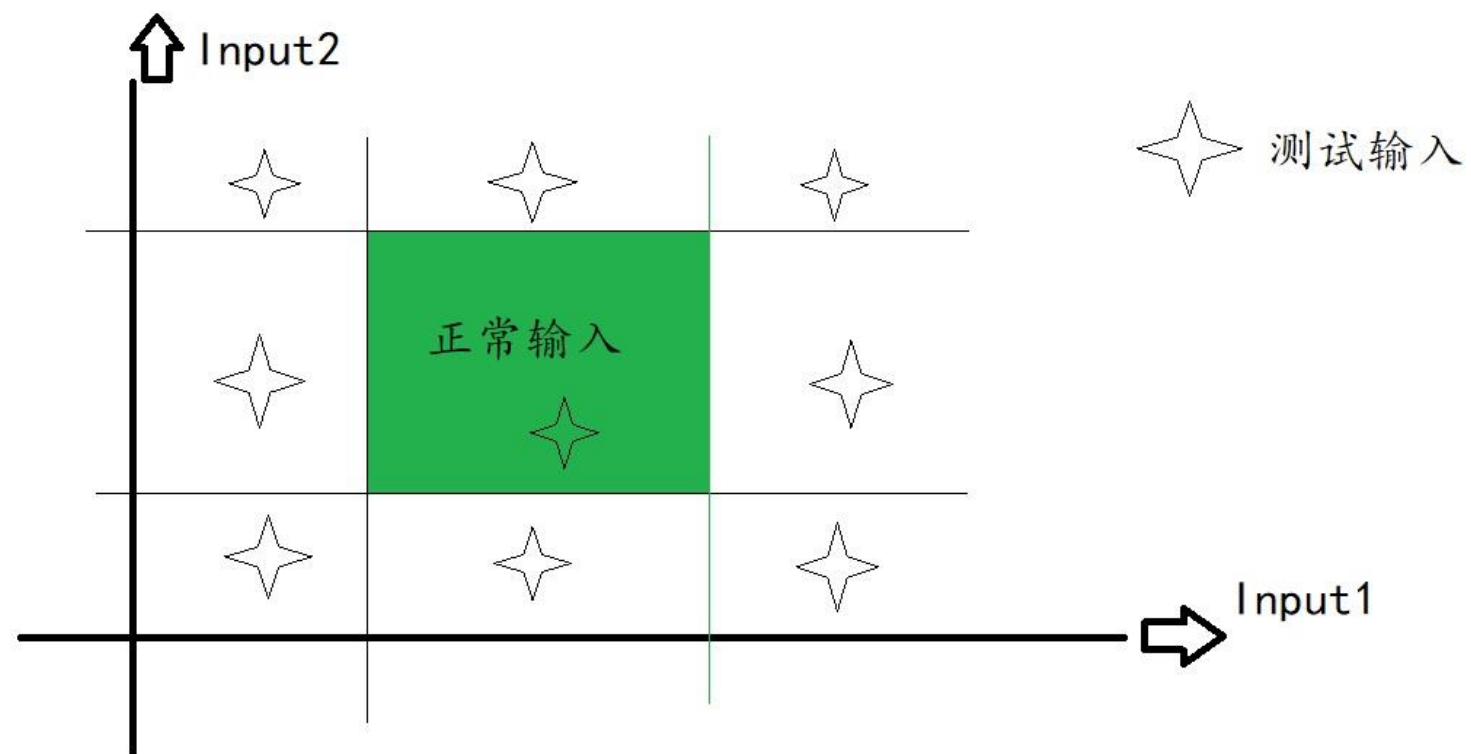


软件测试/产品测试

软件测试： 专注软件质量，新功能集成、迭代开发。稳定性。

产品测试： 专注客户定制，客户需求验证与验收方案确认。

二维Sensor输入



Sensor_controller

- `#include <iostream>`
- `class Sensor_control {`
- `private:`
- `int Sensor_one, Sensor_two, Sensor_three;`
- `public:`
- `Sensor_control(int one, int two, int three);`
- `long get() {`
- `return Sensor_one * Sensor_two * Sensor_three;`
- `}`
- `};`
- `Sensor_control::Sensor_control(int one, int two, int three) {`
- `Sensor_one = one;`
- `Sensor_two = two;`
- `Sensor_three = three;`
- `}`
- `int main()`
- `{`
- `Sensor_control sc(-50, 0, 20);`
- `std::cout << sc.get()<<"\n";`
- `}`

Test case

- Three sensor input (include range)

Sensor_1	Sensor-2	Sensor-3	Assert
max:145 min:-145	max:60 min:0	max:120 min:-160	

Test case

Sensor_1	Sensor-2	Sensor-3	Assert
max:145 min:-145	max:60 min:0	max:120 min:-160	
160	80	160	0
160	80	100	0
160	80	-140	0
160	80	-220	0
160	50	160	0
160	50	100	0
160	50	-140	0
160	50	-220	0
160	-20	160	0
160	-20	100	0
160	-20	-140	0
160	-20	-220	0
140	80	160	0
140	80	100	0
140	80	-140	0
140	80	-220	0
140	50	160	0
140	50	100	700000
140	50	-140	-980000
140	50	-220	0
140	-20	160	0
140	-20	100	0
140	-20	-140	0
140	-20	-220	0
-120	80	160	0
-120	80	100	0
-120	80	-140	0
-120	80	-220	0
-120	50	160	0
-120	50	100	-600000
-120	50	-140	840000
-120	50	-220	0
-120	-20	160	0
-120	-20	100	0
-120	-20	-140	0
-120	-20	-220	0
-150	80	160	0
-150	80	100	0
-150	80	-140	0
-150	80	-220	0
-150	50	160	0
-150	50	100	0
-150	50	-140	0
-150	50	-220	0
-150	-20	160	0
-150	-20	100	0
-150	-20	-140	0
-150	-20	-220	0

Test result(part)

```
Microsoft Visual Studio 调试控制台

0
sc.get()
Which is: 2048000
[ FAILED ] Sensor_test.16080160 (2 ms)
[ RUN ] Sensor_test.14050100
[ OK ] Sensor_test.14050100 (0 ms)
[ RUN ] Sensor_test.negative12050100
[ OK ] Sensor_test.negative12050100 (0 ms)
[ RUN ] Sensor_test.negative150negative20negative220
C:\Users\liouh\Documents\C++\Sensor_controller_test\test.cpp(32): error: Expected equality of these values:
0
sc.get()
Which is: -660000
[ FAILED ] Sensor_test.negative150negative20negative220 (0 ms)
[-----] 4 tests from Sensor_test (5 ms total)

[-----] Global test environment tear-down
[=====] 4 tests from 1 test case ran. (5 ms total)
[ PASSED ] 2 tests.
[ FAILED ] 2 tests, listed below:
[ FAILED ] Sensor_test.16080160
[ FAILED ] Sensor_test.negative150negative20negative220

2 FAILED TESTS

C:\Users\liouh\Documents\C++\Sensor_controller_test\Release\Sensor_controller_test.exe (进程 2136) 已退出，返回代码为: 1
。
若要在调试停止时自动关闭控制台，请启用“工具”->“选项”->“调试”->“调试停止时自动关闭控制台”。
按任意键关闭此窗口...
```