

HALCON 3D测量技术

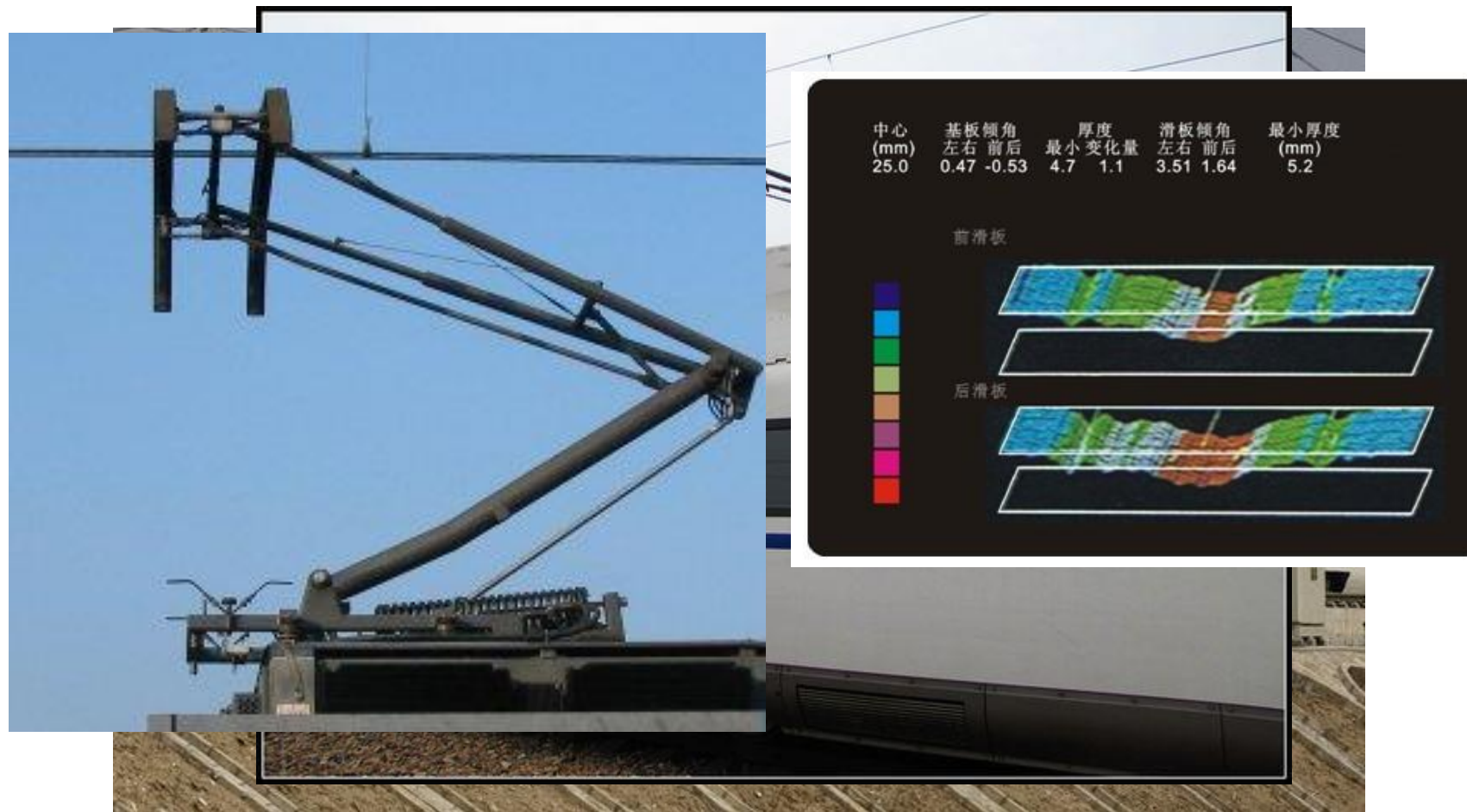


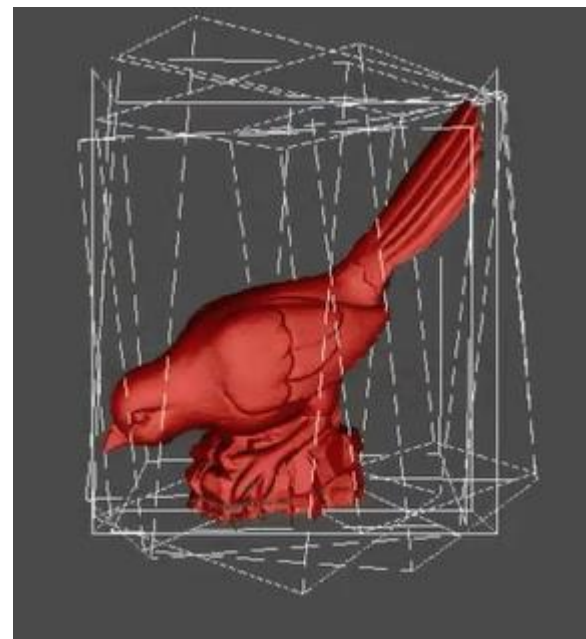
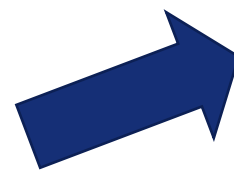
安迪·瑟金斯

——《猩球崛起》

- 一、需要知道物体的深度信息
- 二、需要重构物体的外形
- 三、用于解决某些2D图像的分割问题

需要知道物体的深度信息

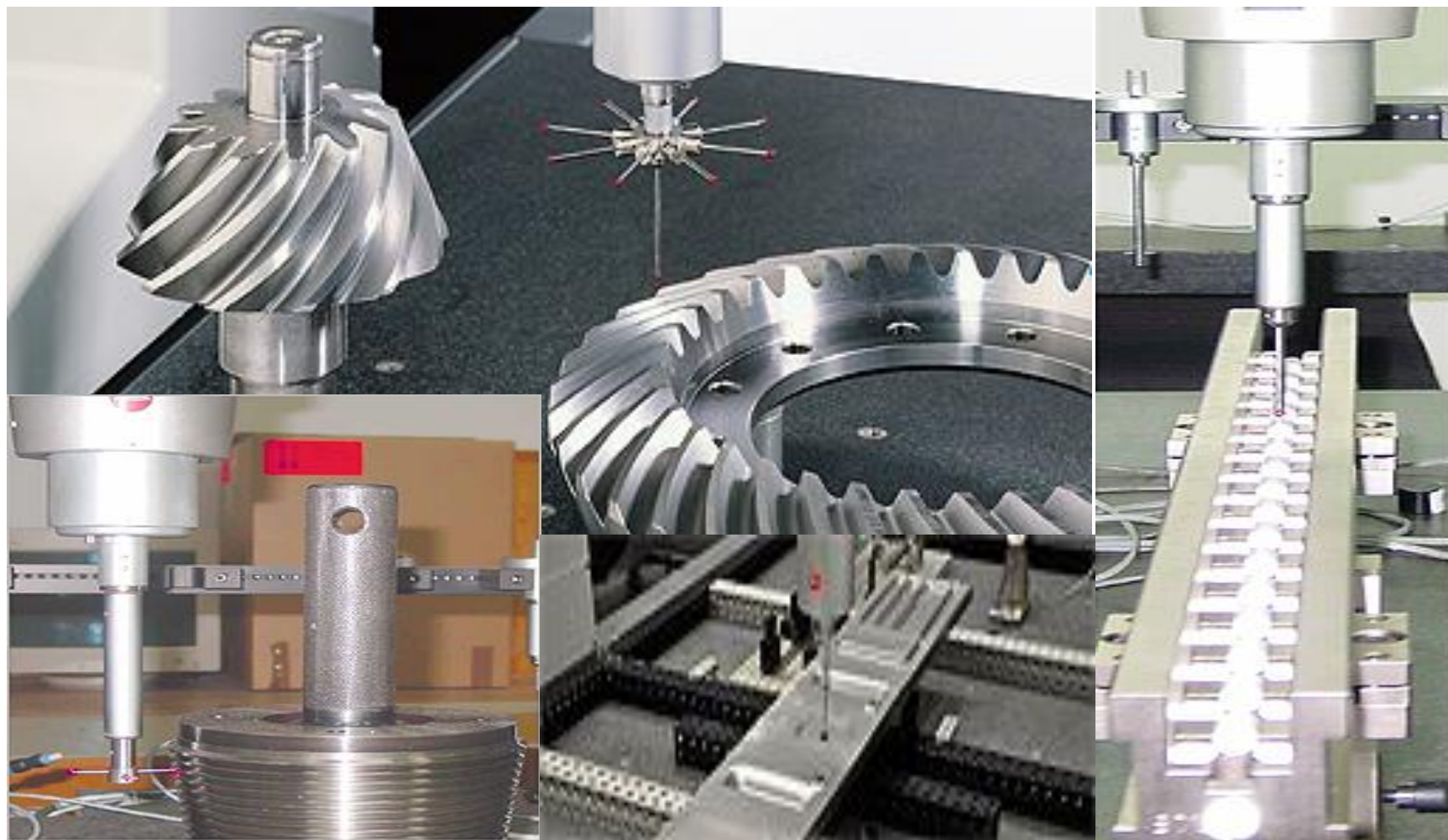




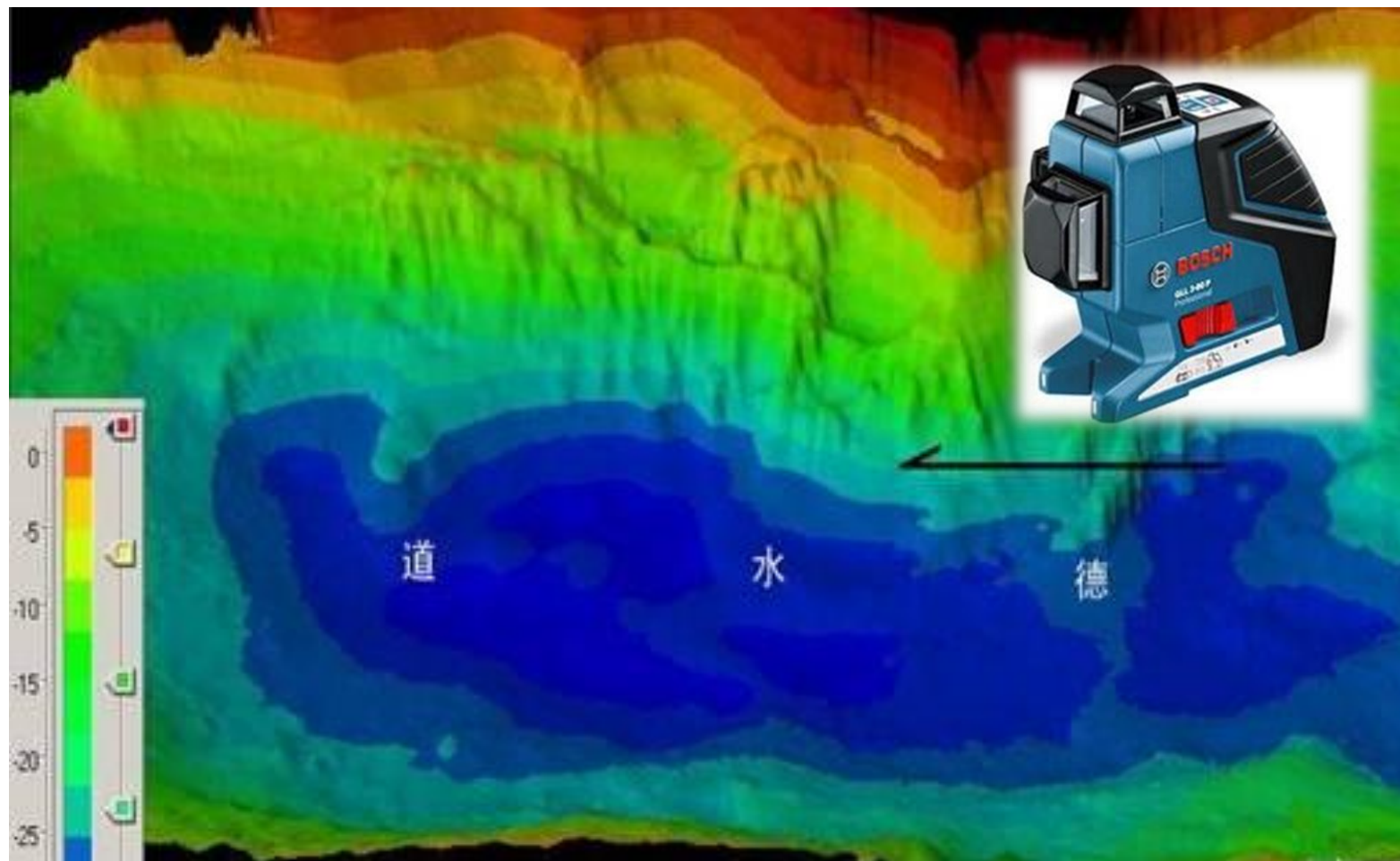
用于解决某些2D图像的分割问题













01

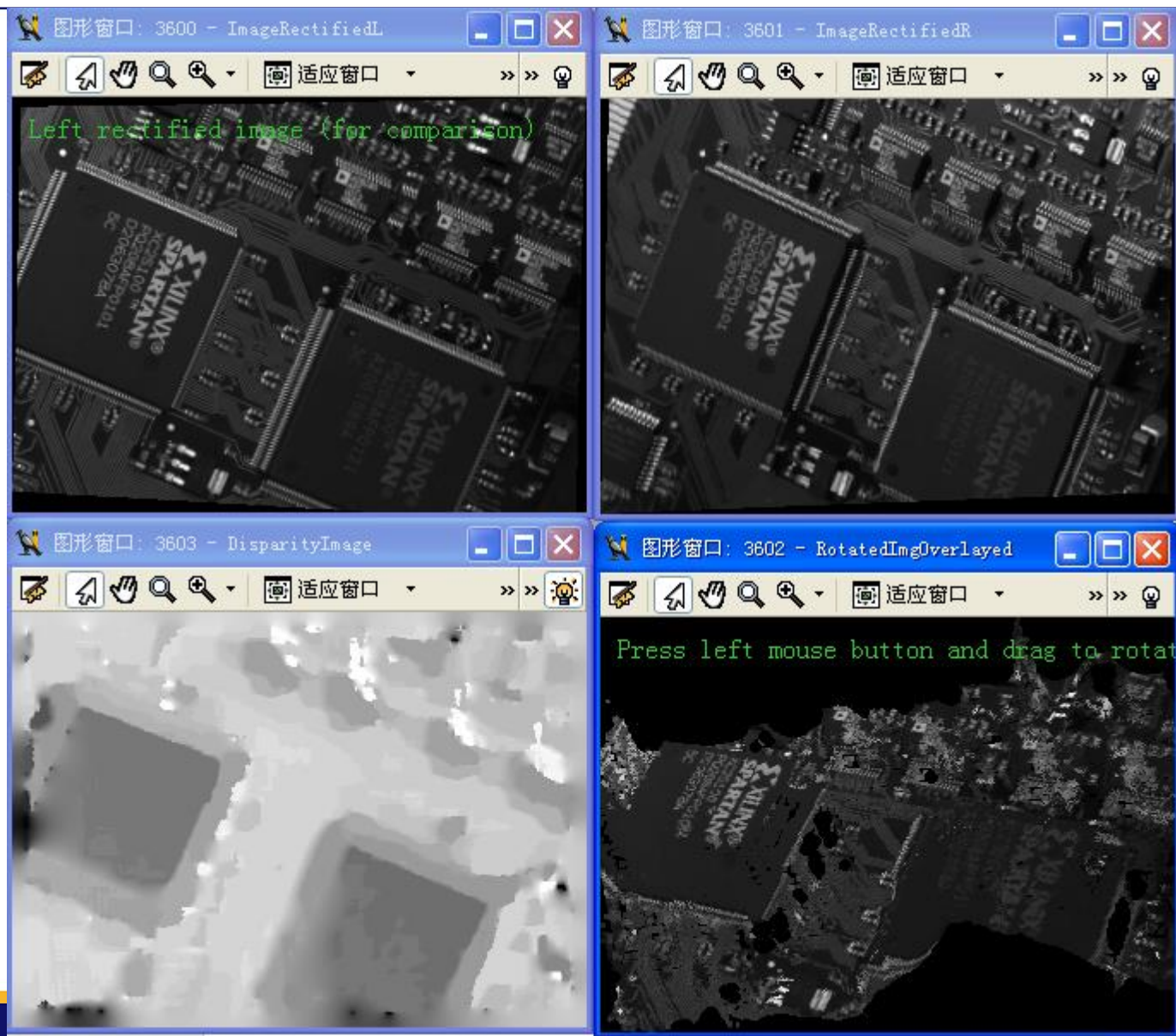
双目重构

一、什么是双目重构

二、重构的流程

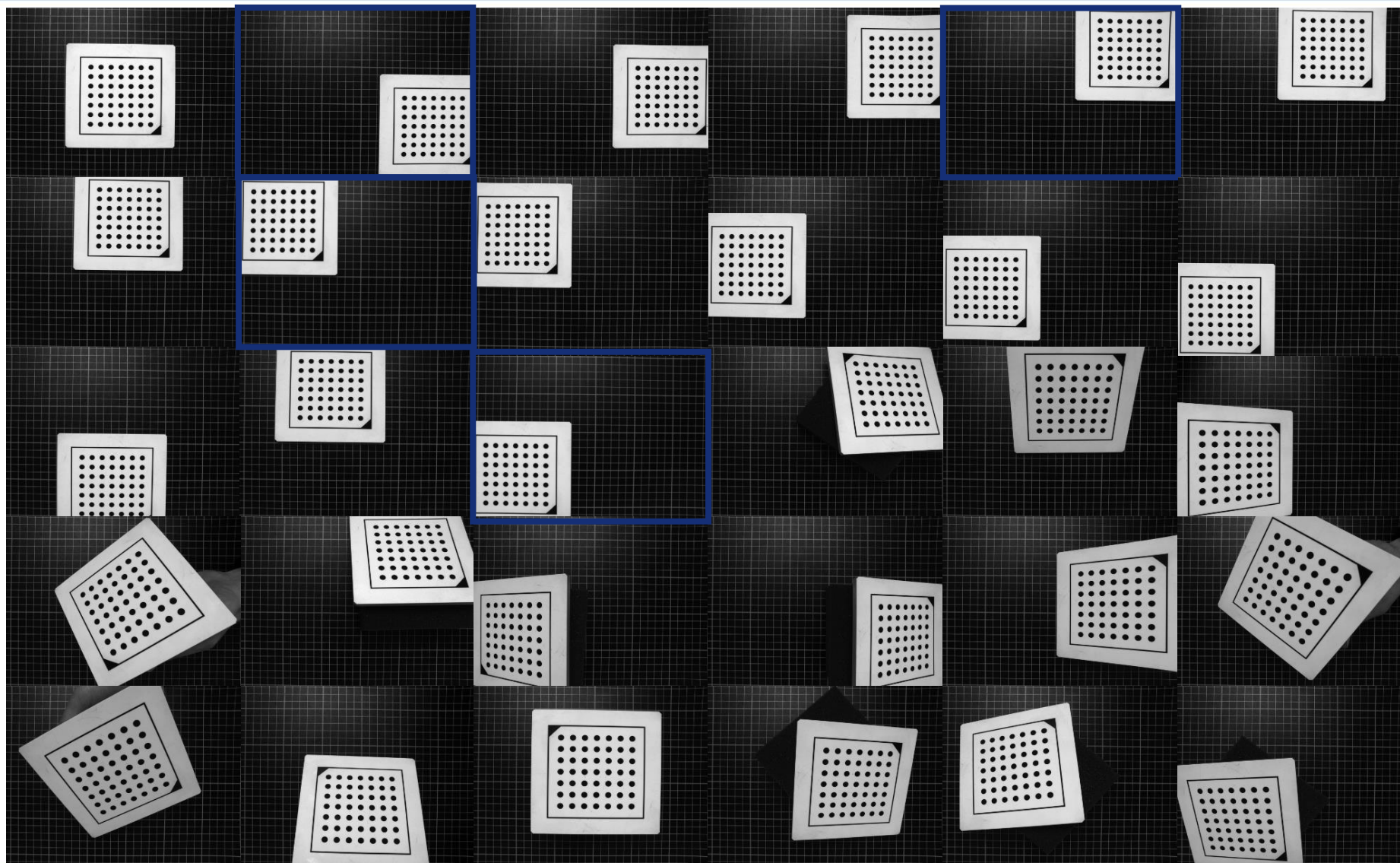
三、重构的原理

什么是双目重构



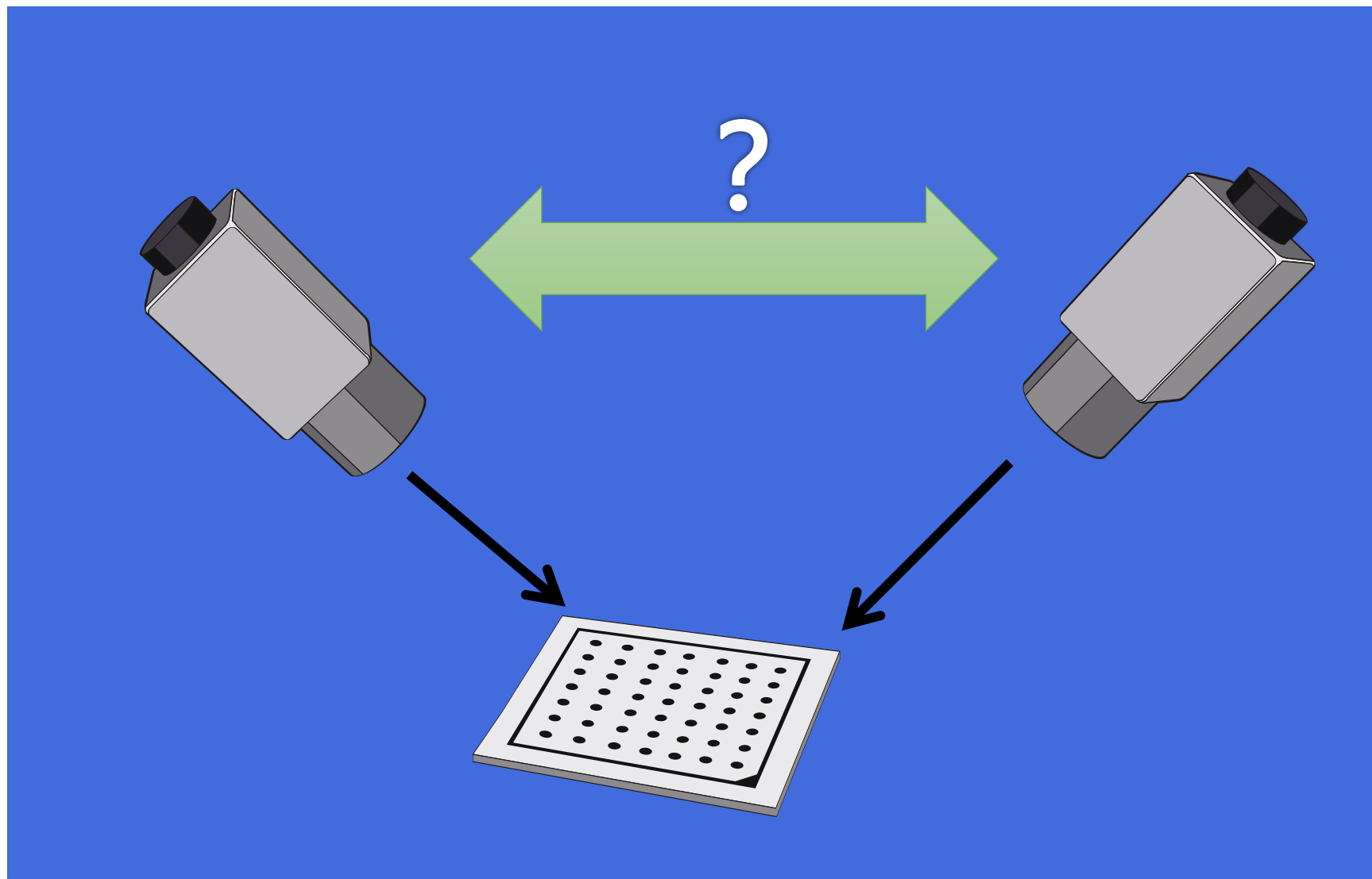
- 1、摄像机标定获取内参和外参
- 2、极线矫正
- 3、在两幅图像中搜索匹配点
- 4、计算深度信息
- 5、重构表面数据

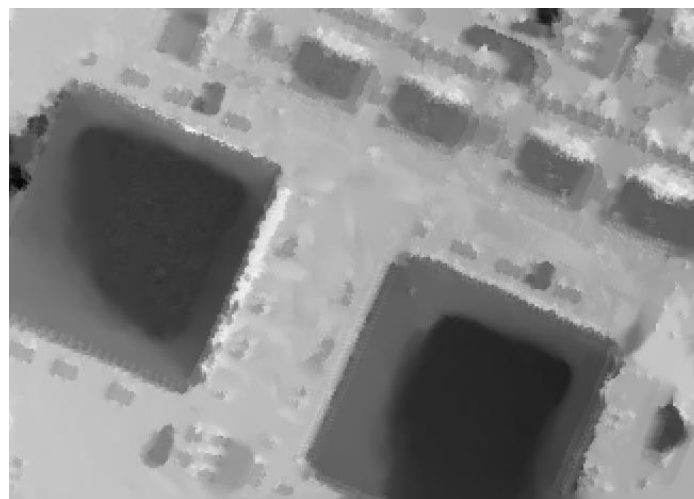
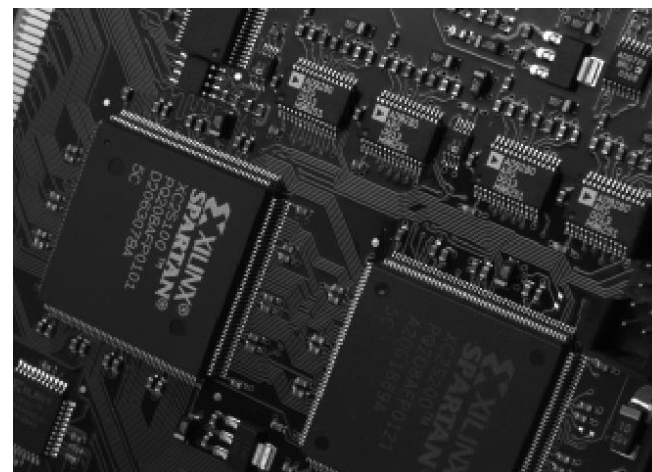
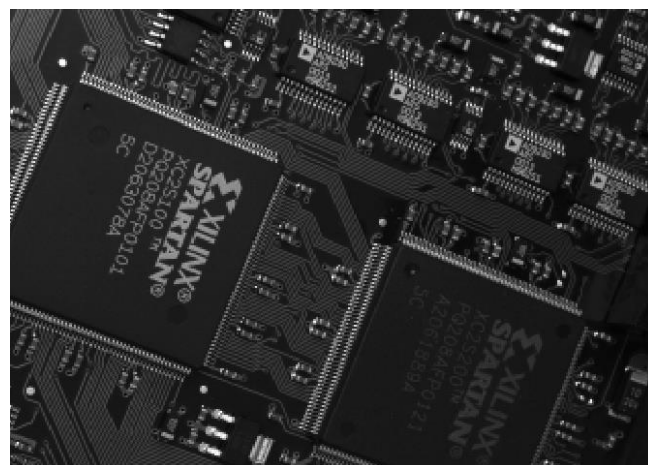
- 1、拍摄标定板图像
- 2、畸变矫正
- 3、确定标定板和相机的位置关系
- 4、生成深度图像



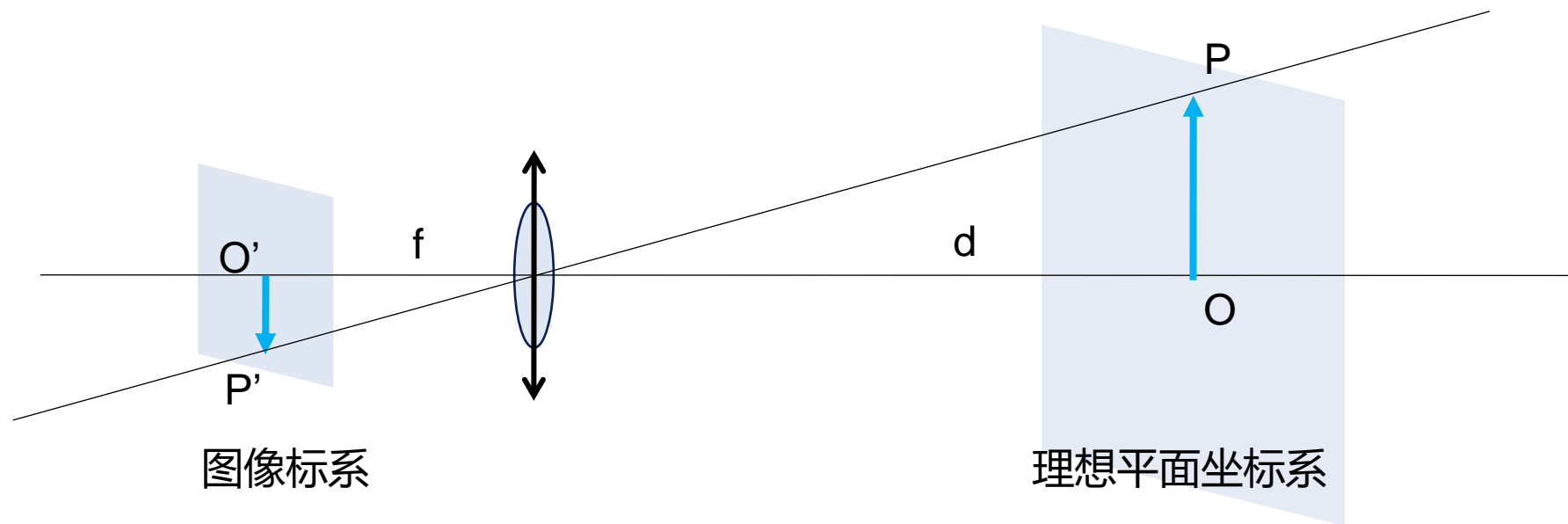


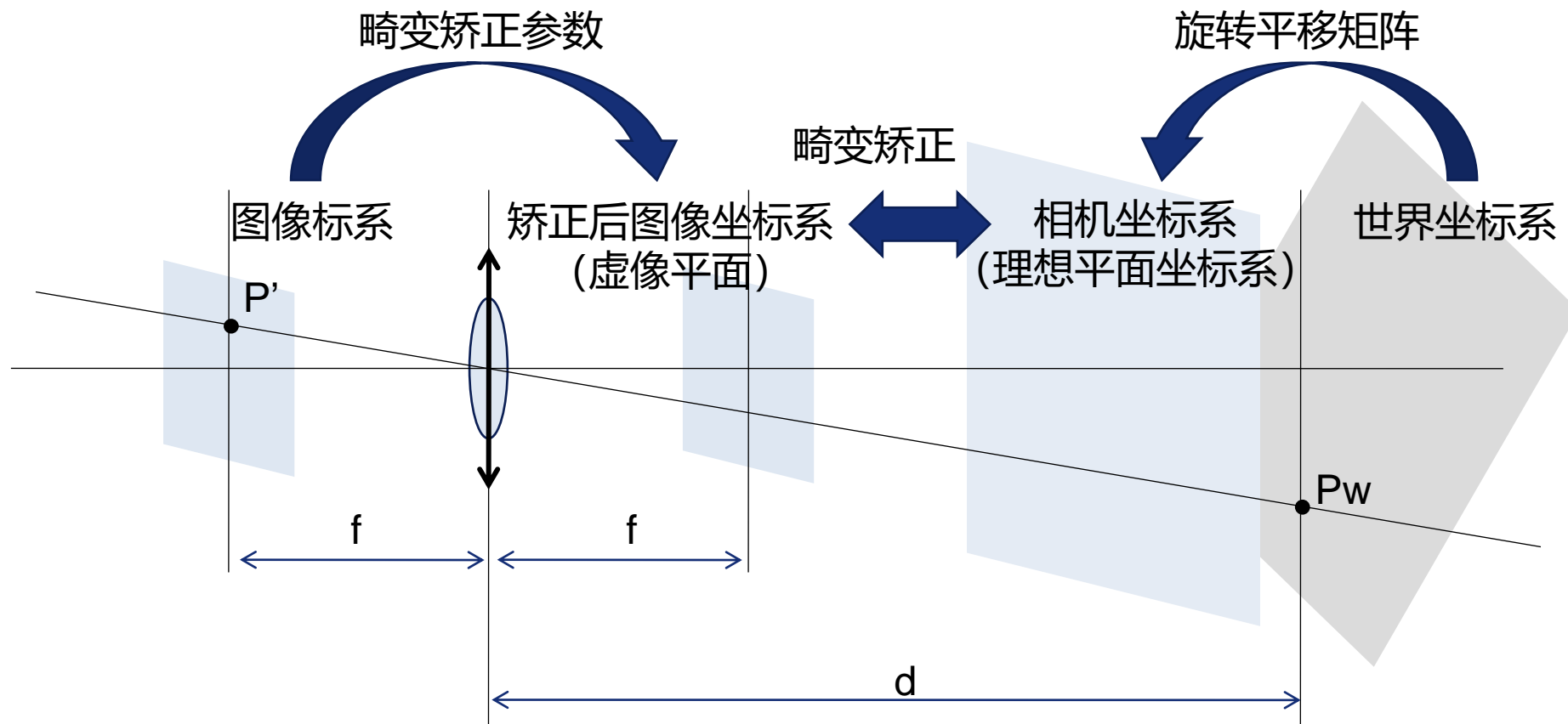


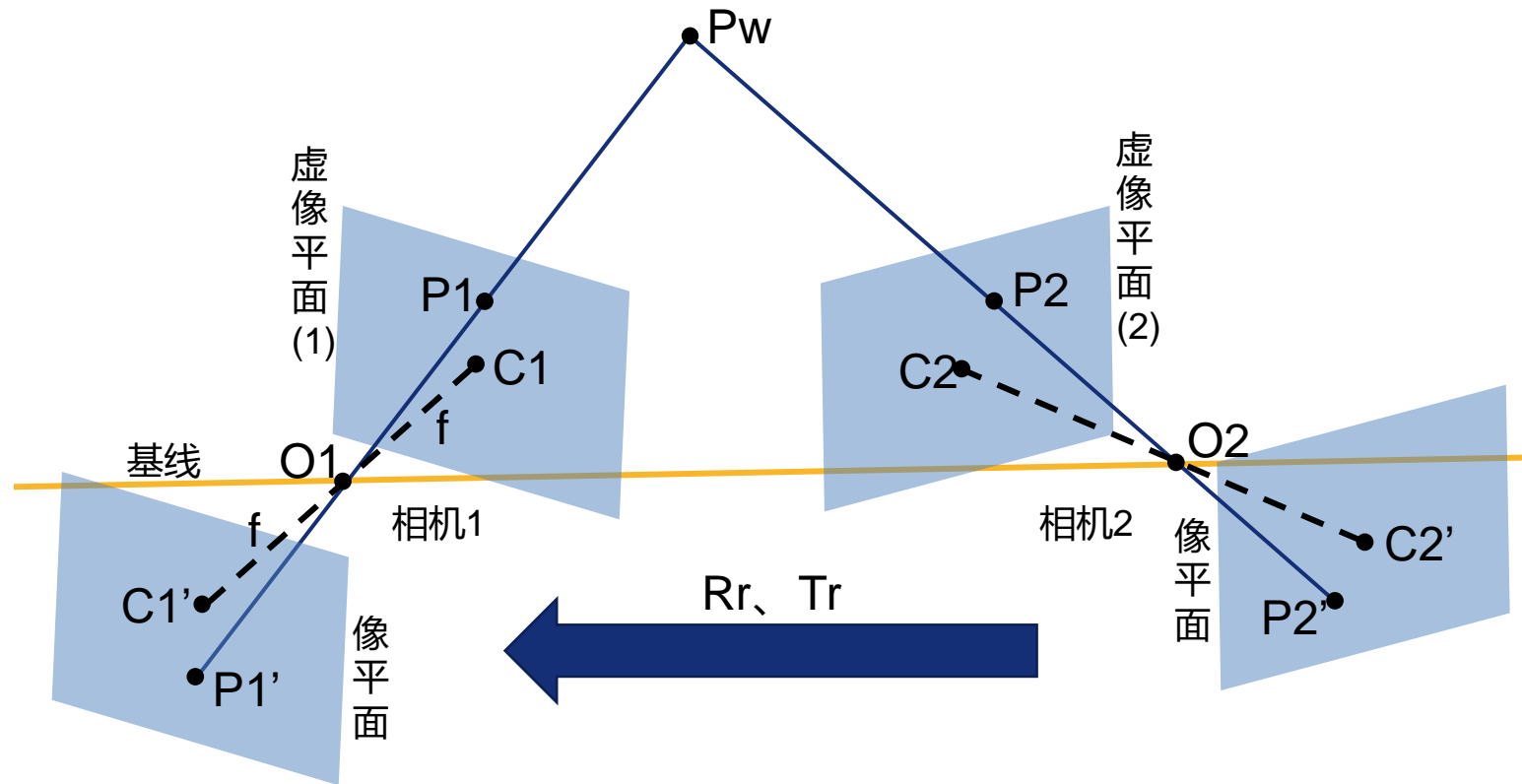


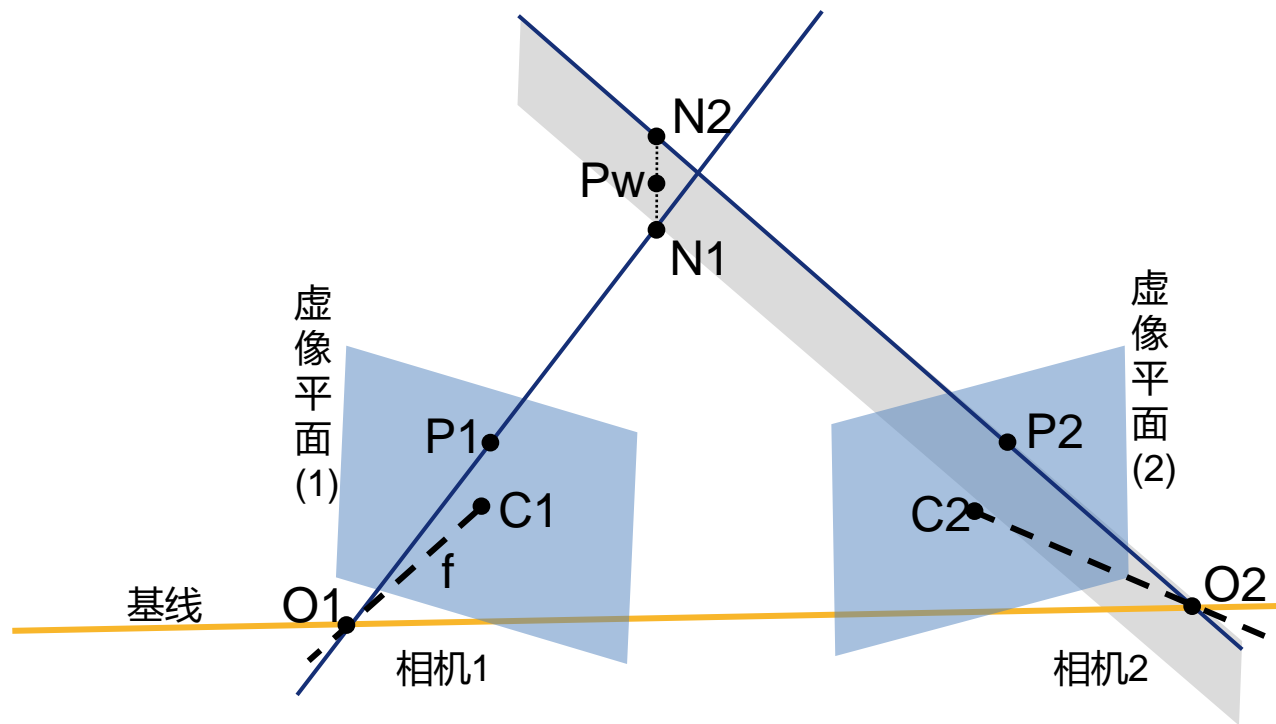


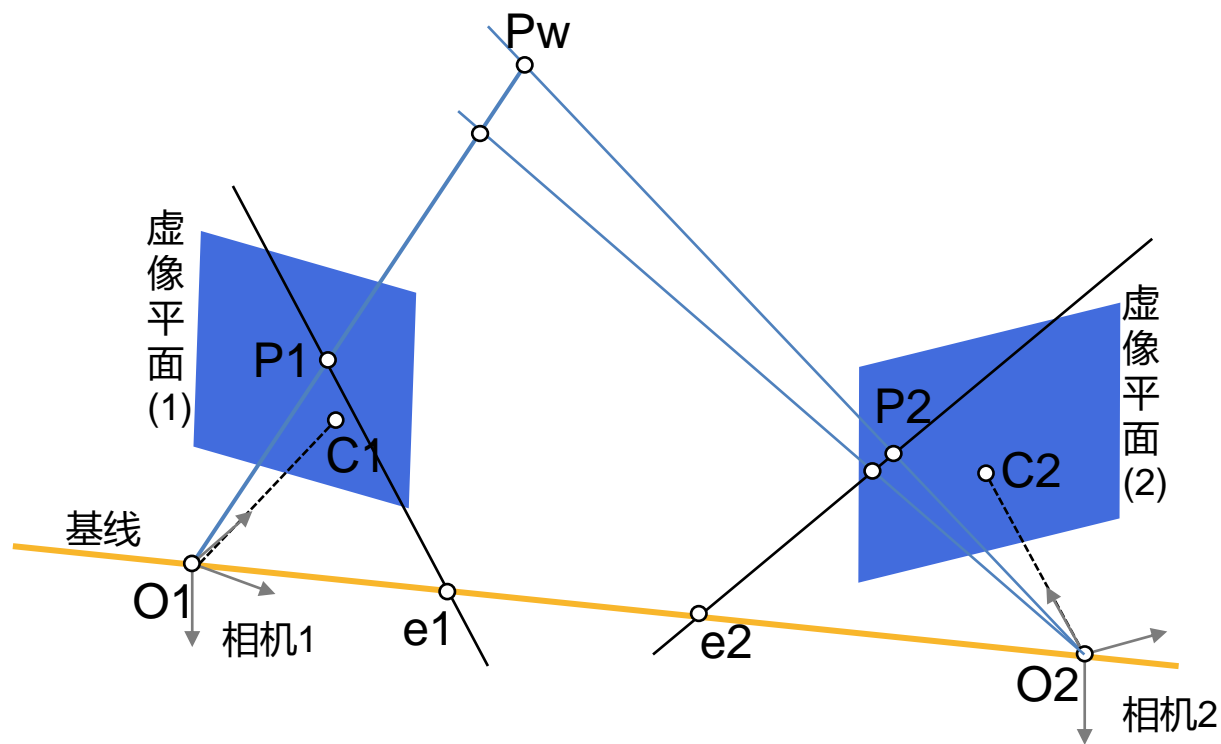
- 1、理想针孔模型
- 2、世界坐标到图像坐标转换
- 3、双目测距原理
- 4、极线约束
- 5、极线矫正
- 6、匹配点搜索

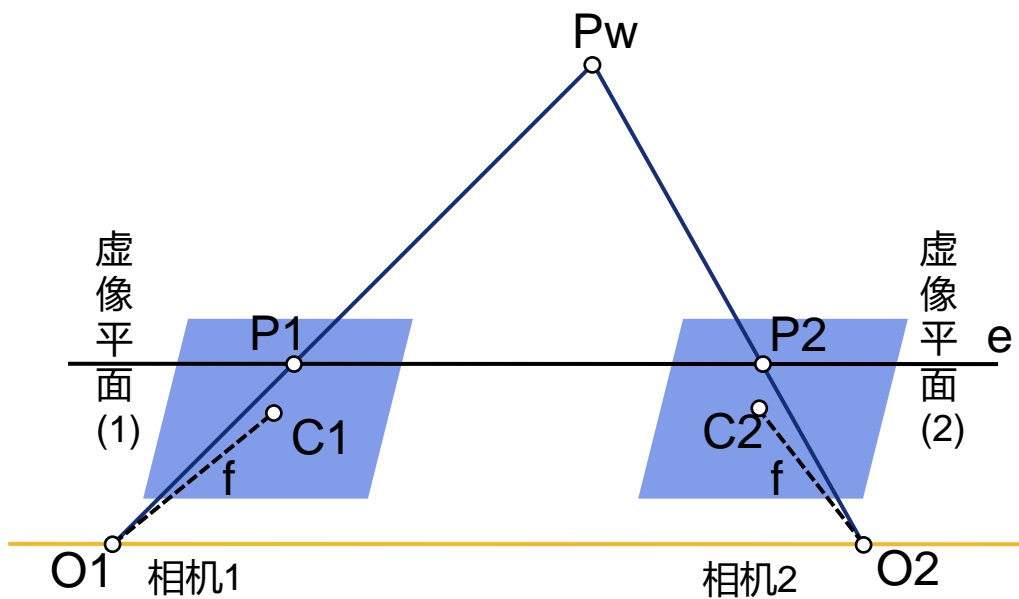


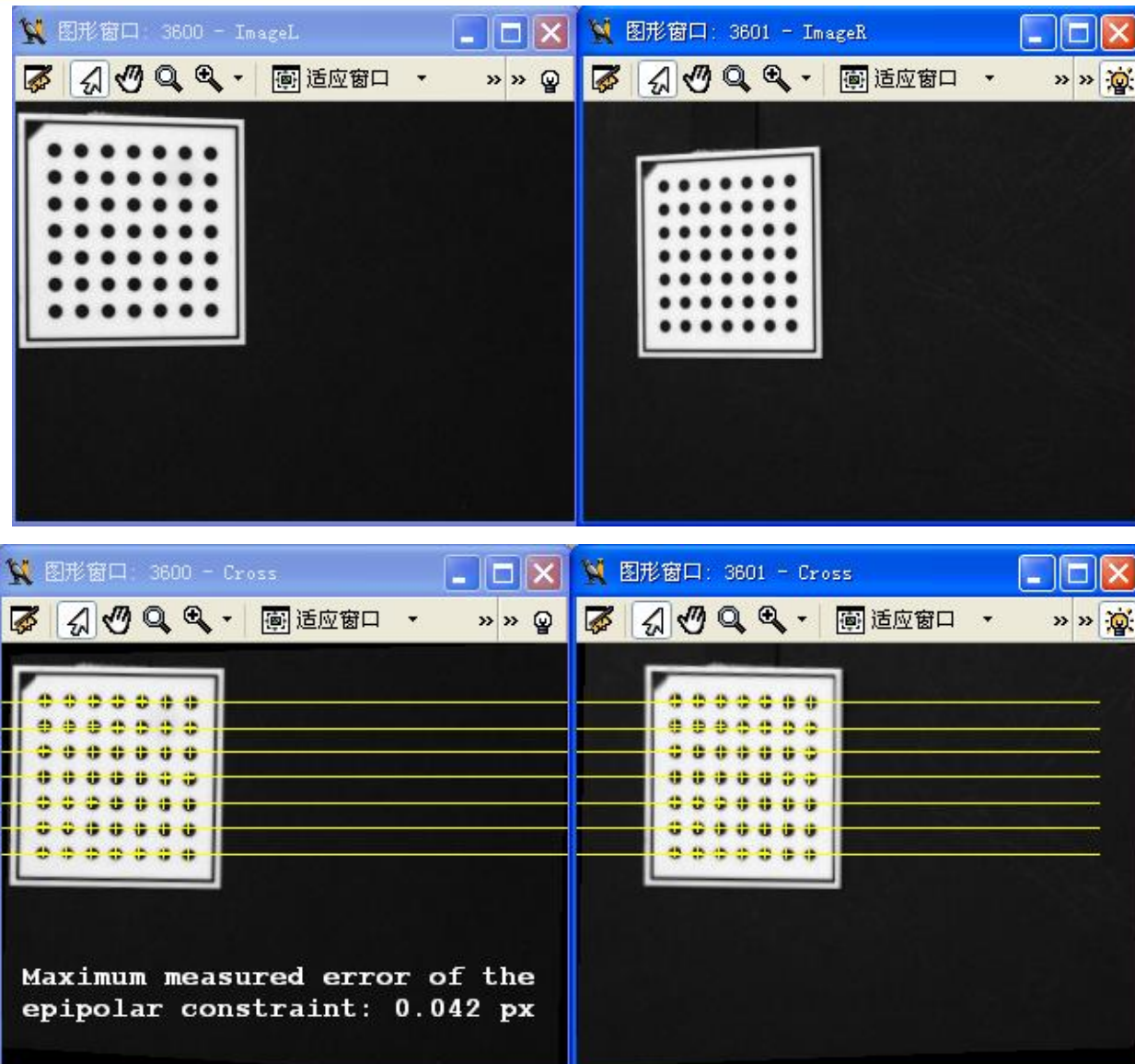


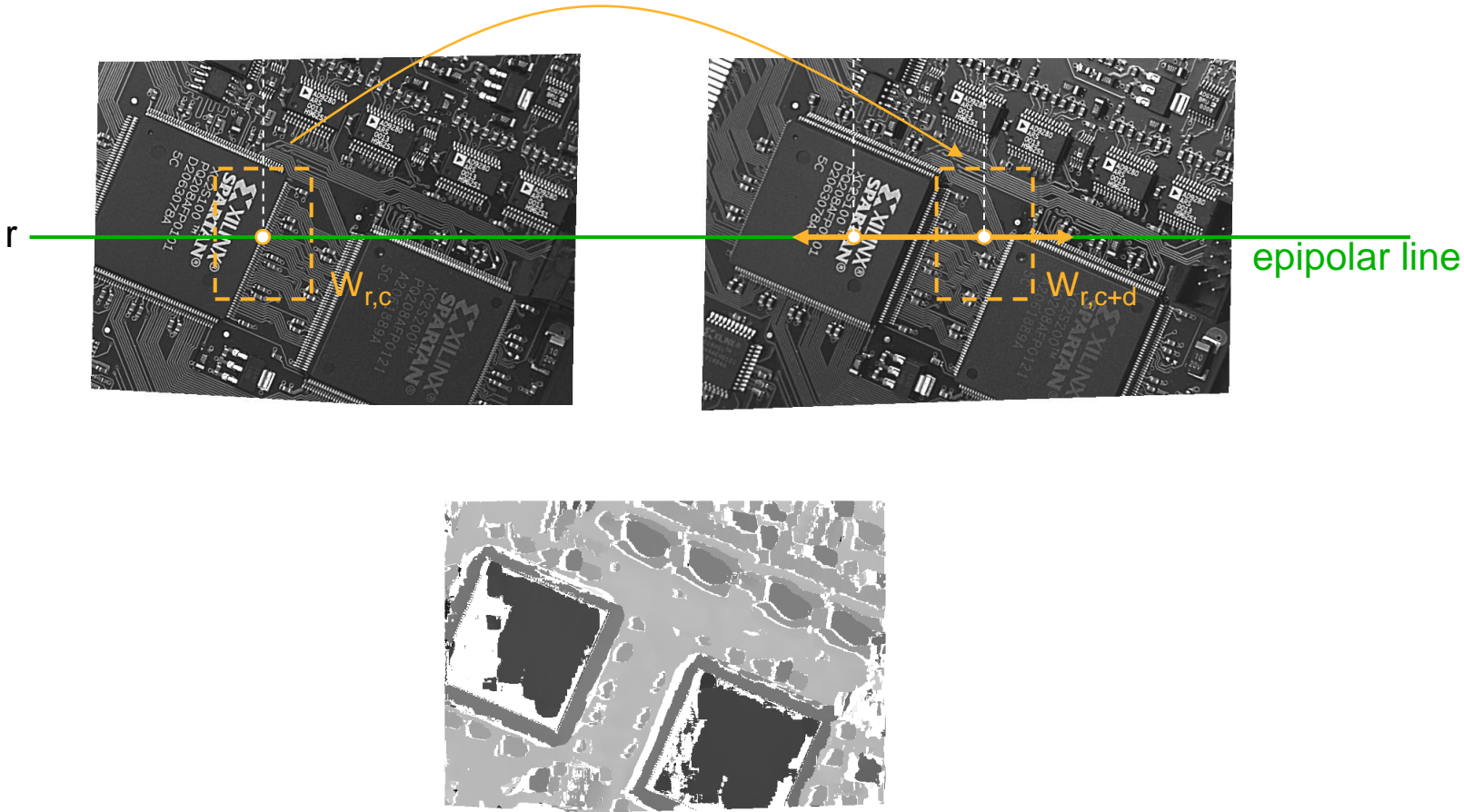


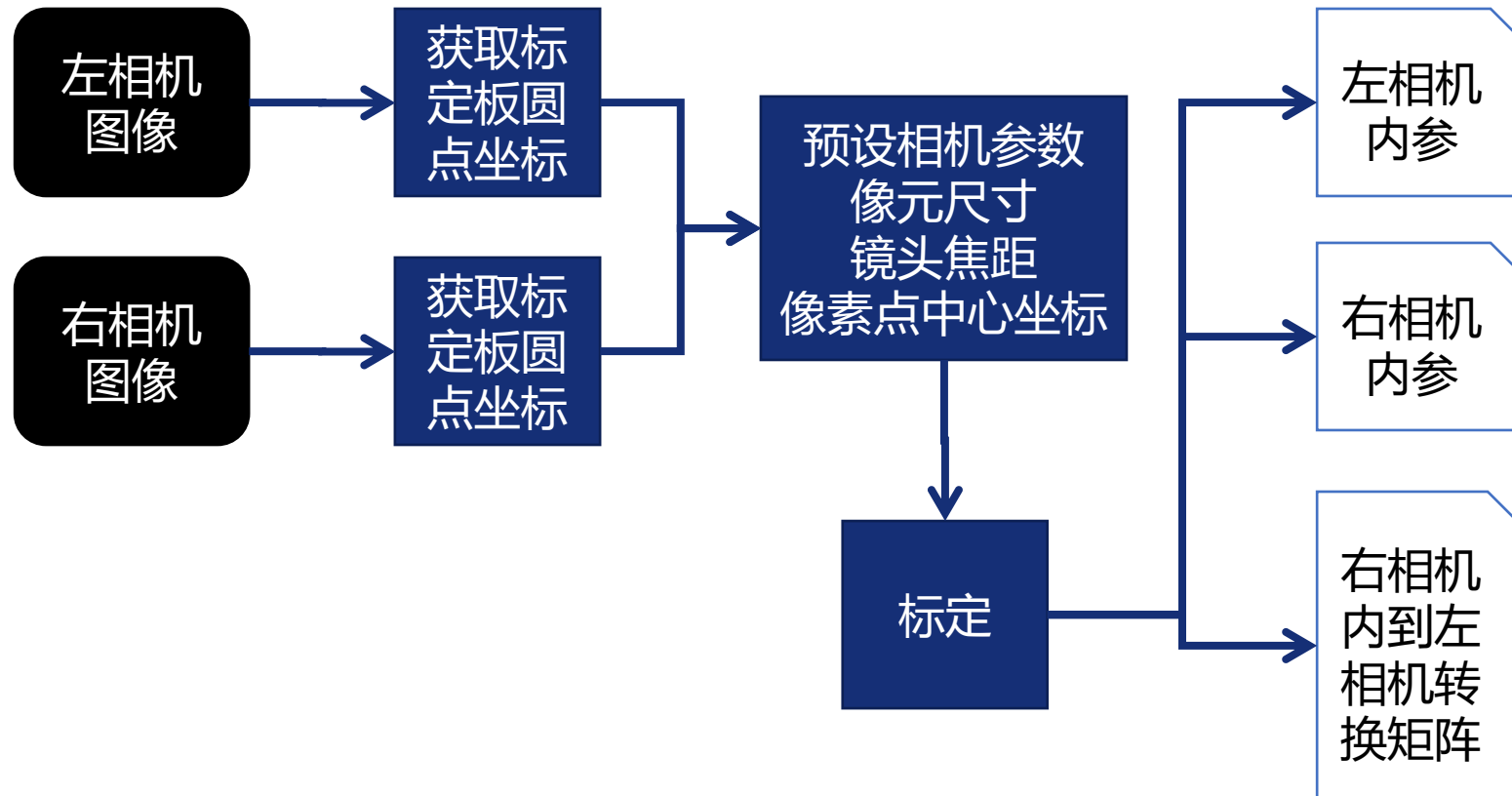


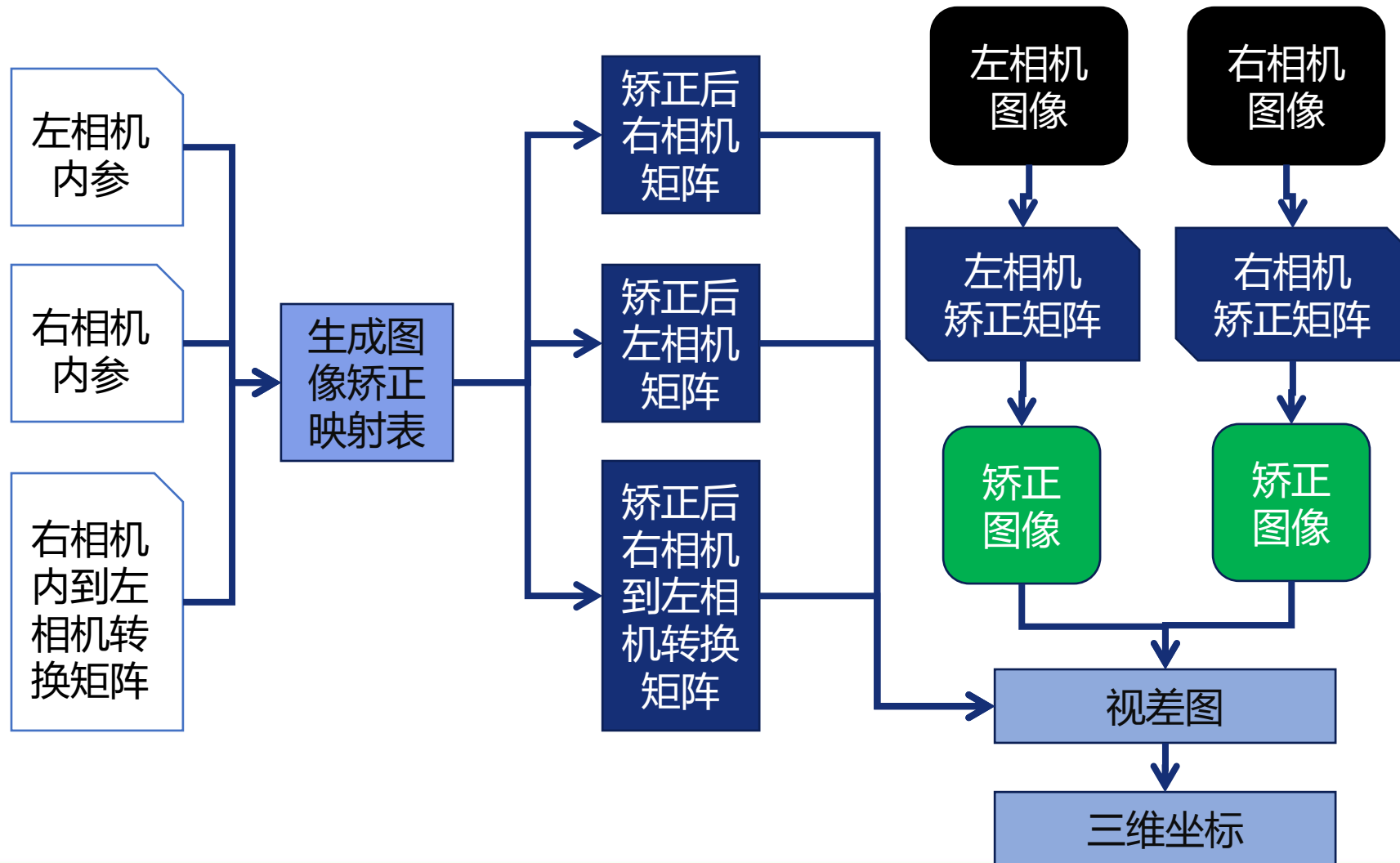












标定

- [单目标定](#)
- [双目标定](#)

标定数据应用

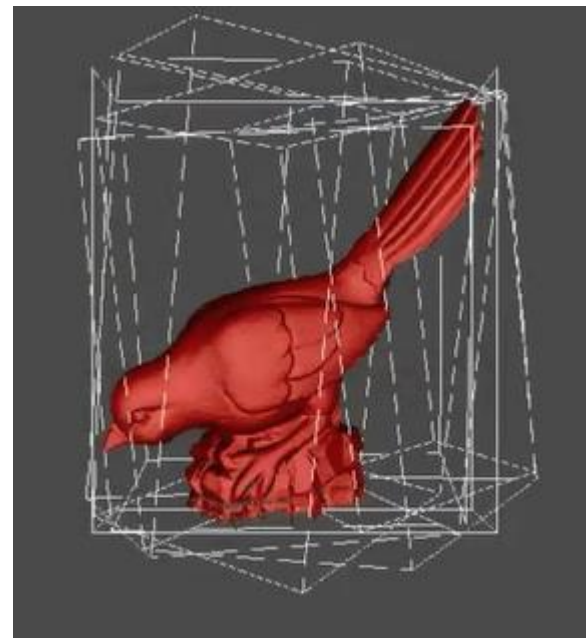
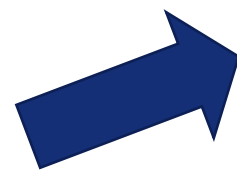
- [图像拼接](#)
- 生成视差图
 - [通过匹配点方式](#)
 - [通过栅格方式](#)

➤ 视差图应用

- [获取点云图](#)

- [3D匹配](#)

3D逆向工程



自动驾驶





中国大恒(集团)有限公司北京图像视觉技术分公司
China Daheng Group, Inc. Beijing Image Vision Technology Branch