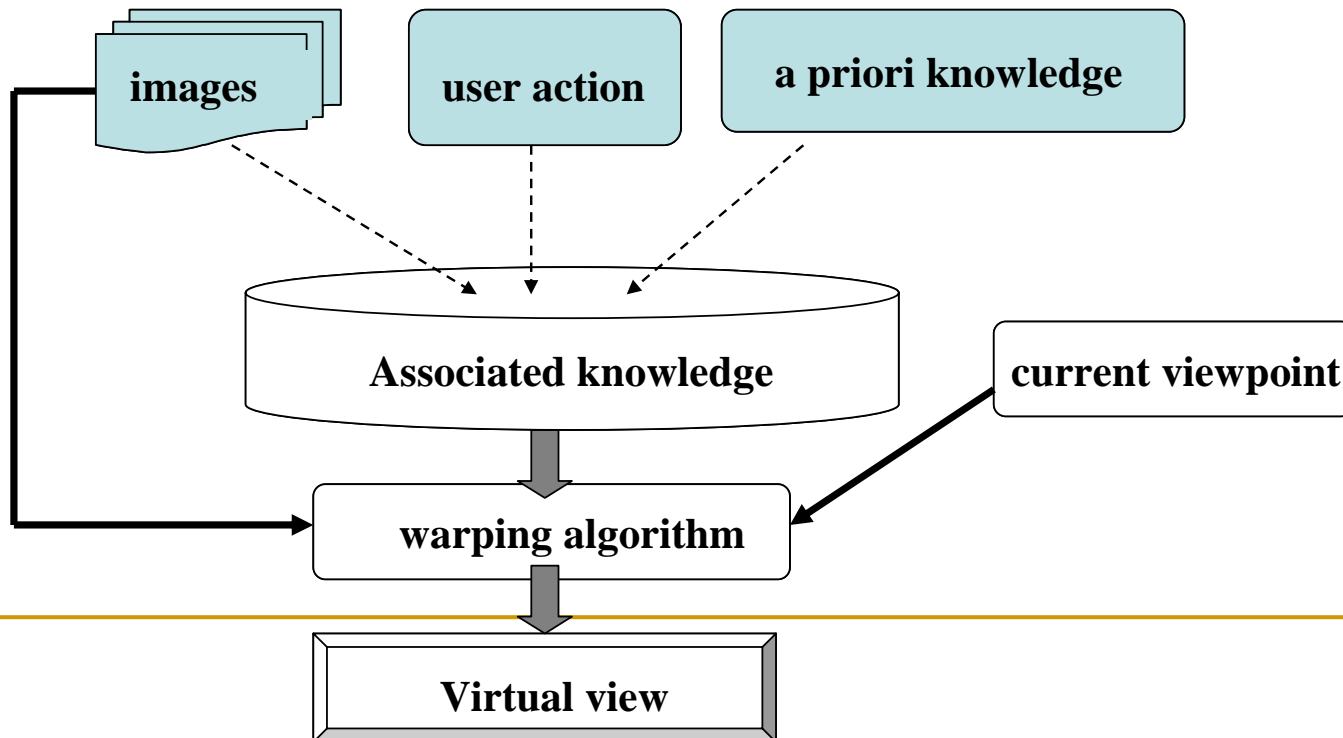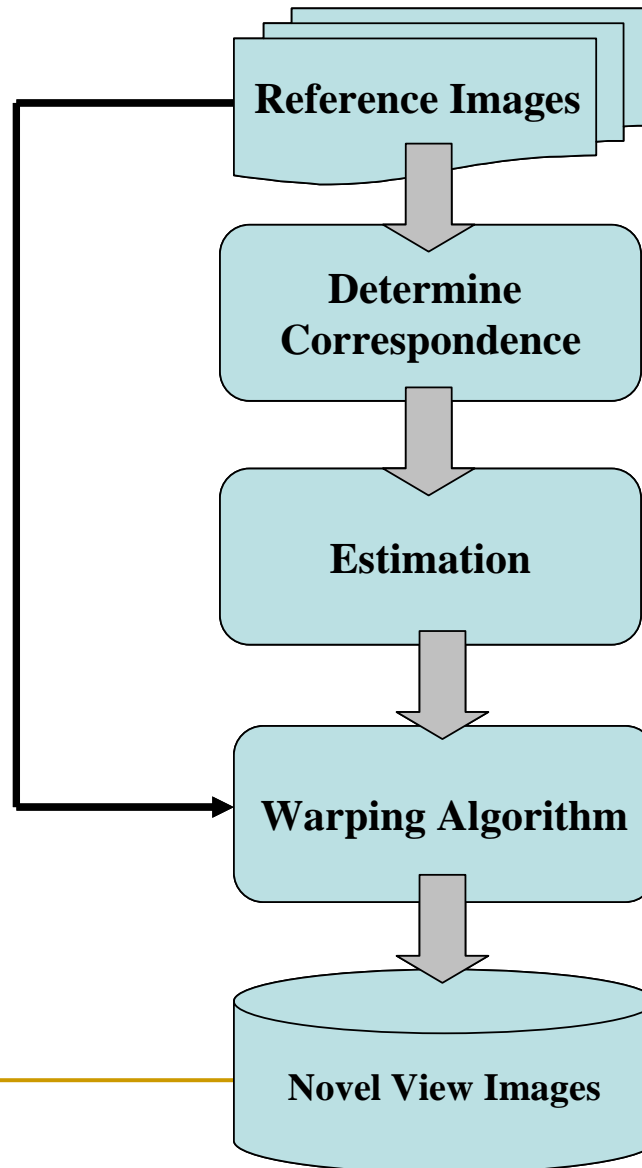# Introduction

- Model-Based Rendering : the computationally intensive process of acquiring a **3D model** and the **strong** camera calibration

- The image-based approach represents an alternative to the model-based rendering
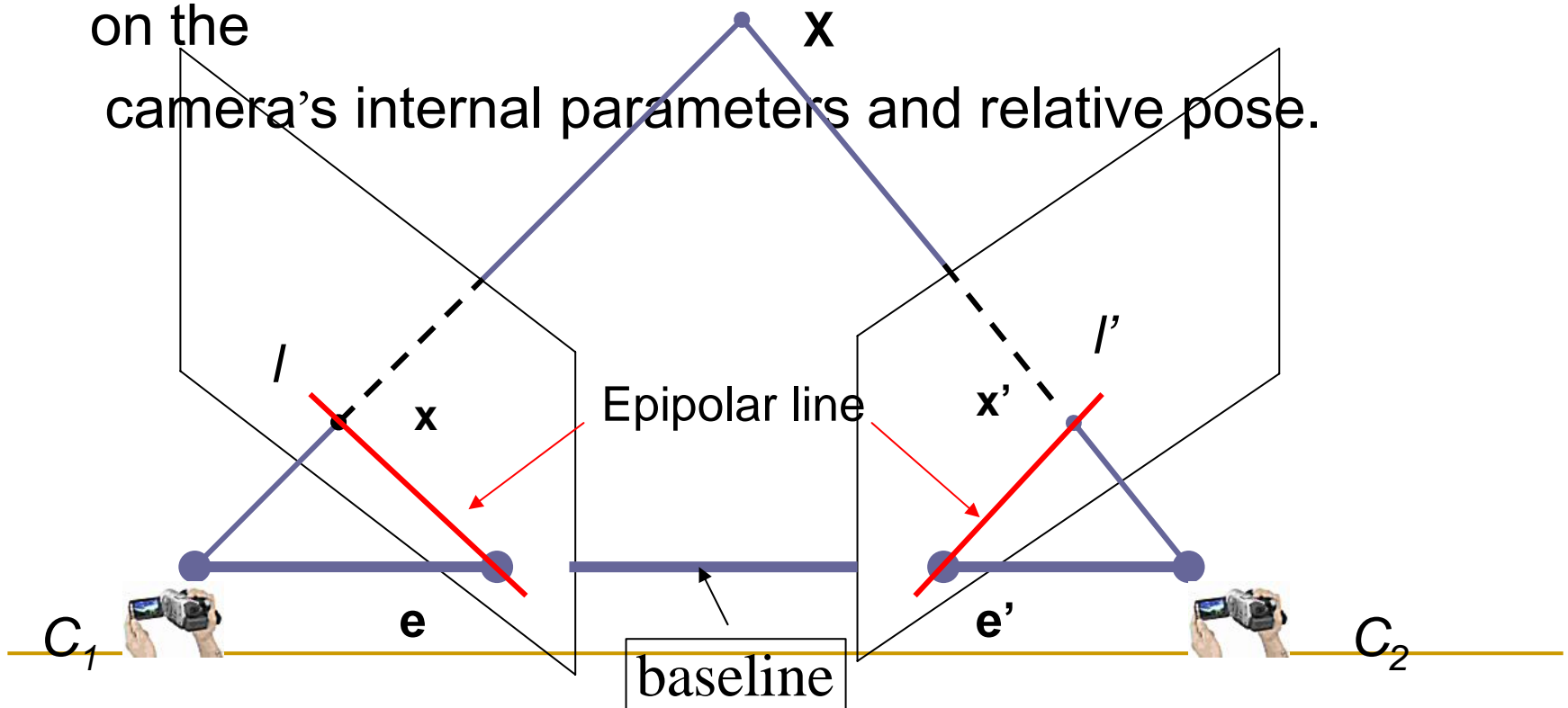
System Overview

Two-View Geometry

Epipolar Geometry

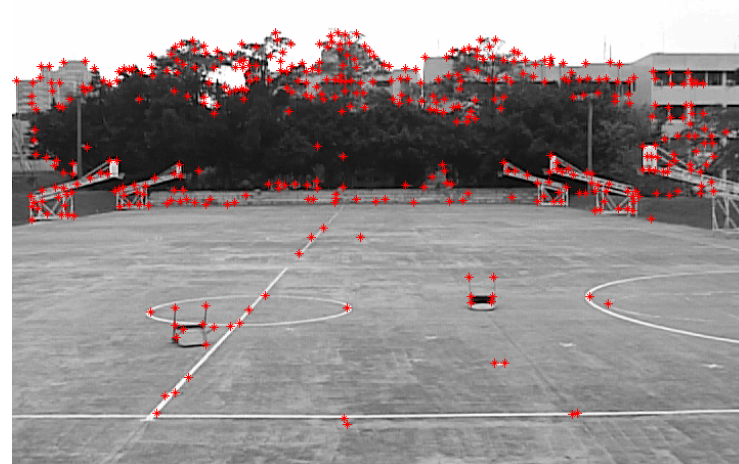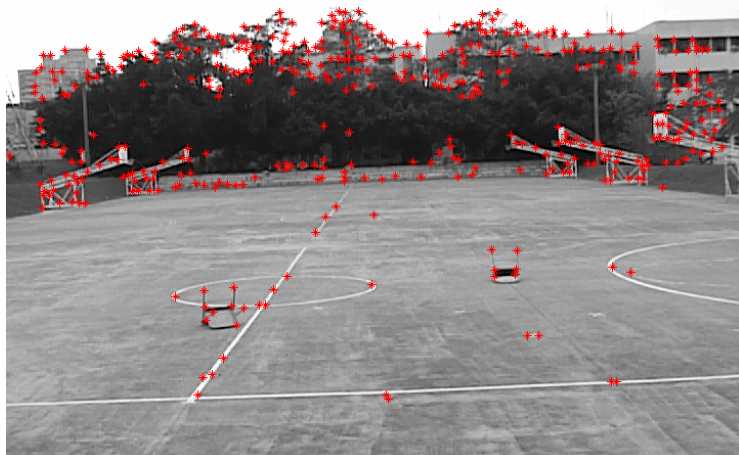- The **epipolar geometry** is the intrinsic projective geometry between

  two views, independent of scene structure, but depends on the
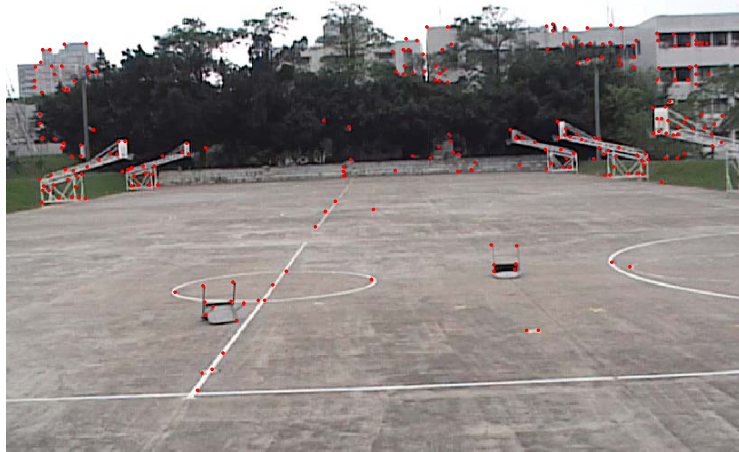
  camera's internal parameters and relative pose.

$\mathbf{X}$

l

l'

Epipolar line

$\mathbf{x}$

$\mathbf{x'}$

$\mathbf{e}$

$\mathbf{e'}$

C_1

C_2

baseline

Determine Correspondences
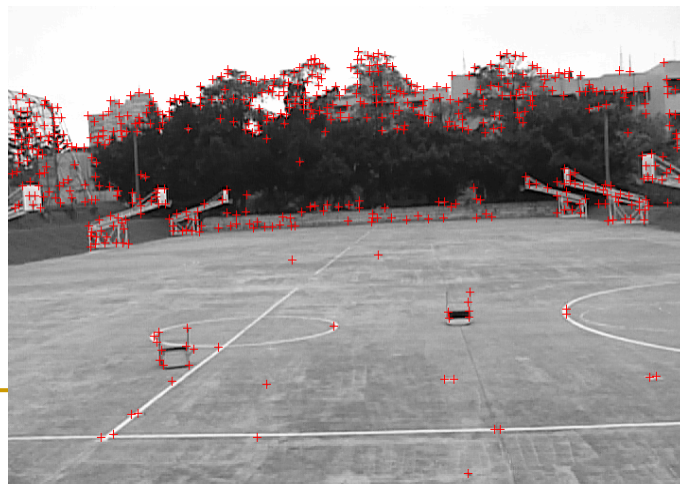
Putative correspondences through NCC

Correspondences through RANSAC

Determine Correspondences

Corner Detector
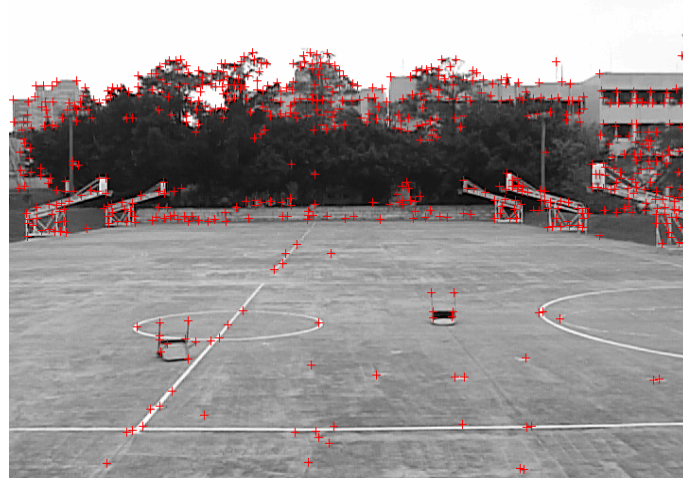
View Synthesis

Trifocal Transfer

$$p''^k = p^i l'_j T_i^{jk}$$
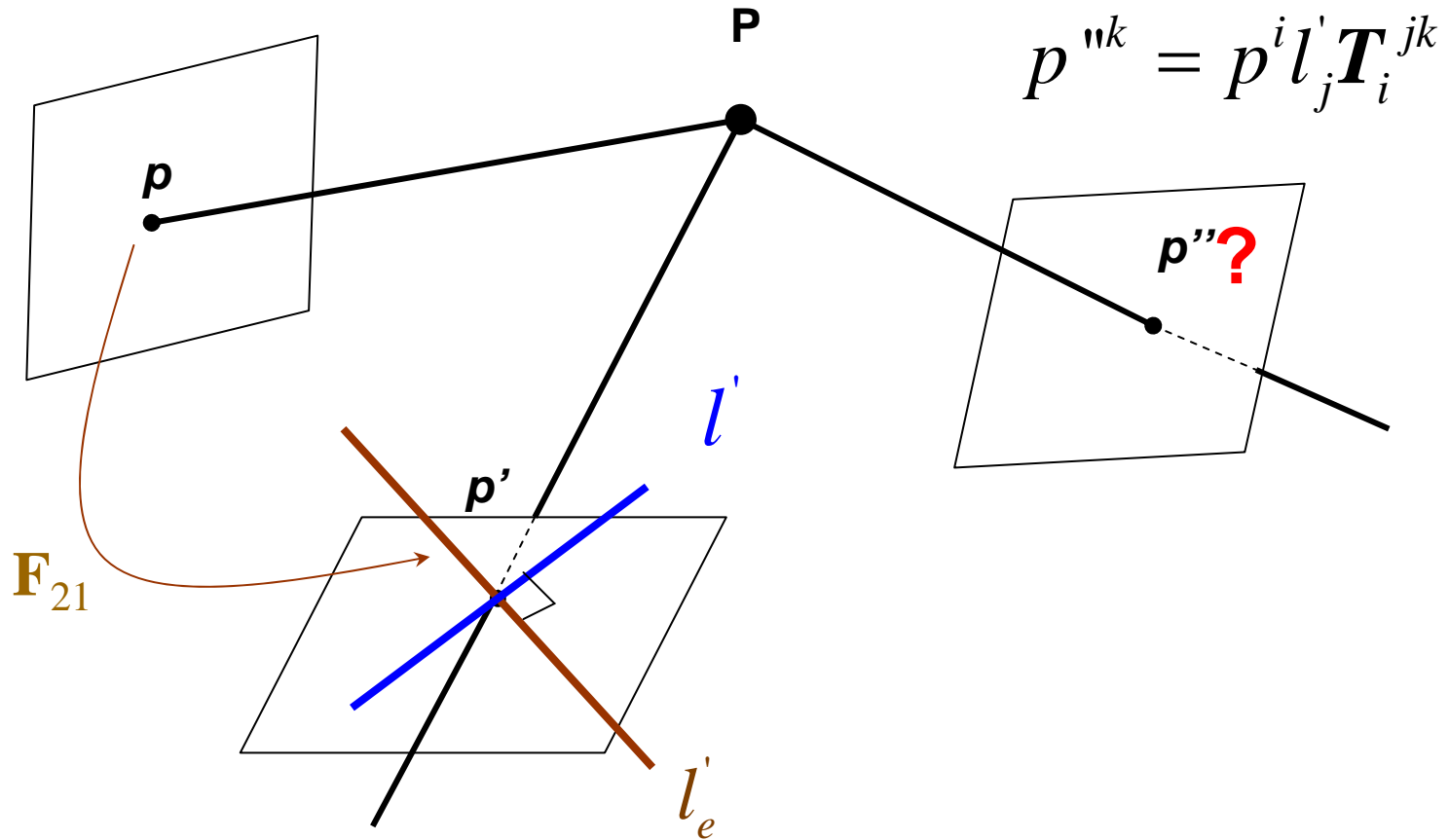
Experimental Results
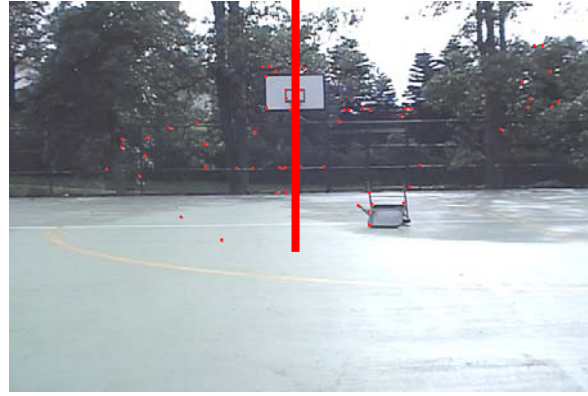
r_3 r_4 **T** t_3

$H_{background}$ reprojection

H_{field}

Experimental Results
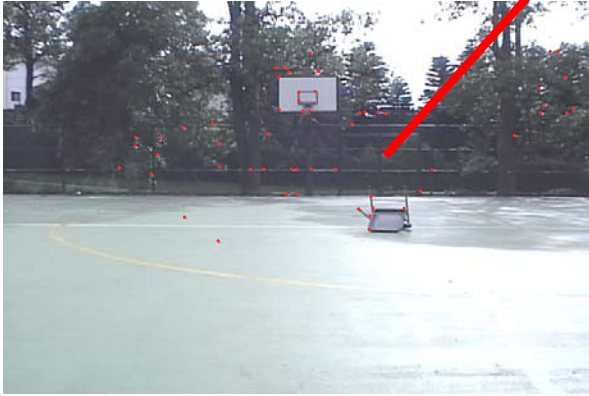
r_3 T' r_4 t_4

$H_{background}$ reprojection

H_{field}

Experimental Results
Outdoor Environment

Views between r_3 and t_3

Views between r_3 and t_4

Experimental Results
More complicated scene: View2