decomposecamera - Decomposition of a camera projection matrix

Usage: [K, R, C, pp, pv] = decomposecamera(P);

   P is decomposed into the form P = K*[R -R*C]

Input: P - 3 x 4 camera projection matrix

Output:

K - Calibration matrix of the form

```
|  ax   s   x0  |
|   0   ay  y0  |
|   0   0    1  |
```

Where:
ax = f/pixel_width and ay = f/pixel_height,
x0 and y0 define the principal point in pixels,
s is the camera skew.

R - 3 x 3 rotation matrix defining the world coordinate frame in terms of the camera frame. Columns of R transposed define the directions of the camera X, Y and Z axes in world coordinates.

C - Camera centre position in world coordinates.

pp - Image principal point.

pv - Principal vector from the camera centre C through pp pointing out from the camera. This may not be the same as R'(:,3) if the principal point is not at the centre of the image, but it should be similar.

See also: RQ3

Reference: Hartley and Zisserman 2nd Ed. pp 155-164

October 2010 Original version
November 2013 Description of rotation matrix R corrected (transposed)