6. An imaging system as set forth in claim 1, wherein forming the echelon form of matrix D includes includes column scaling and shifting of matrix D.

7. An imaging system as set forth in claim 1, wherein forming the echelon form of matrix D includes row scaling and shifting of matrix D.

8. An imaging system as set forth in claim 2, wherein forming the echelon form of matrix D includes selecting a tolerance value.

9. An imaging system as set forth in claim 2, wherein forming the echelon form of matrix D includes selecting a rank tolerance value and a grouping tolerance value.

10. An imaging system as set forth in claim 2, wherein forming the echelon form of matrix D includes applying Gauss-Jordan elimination to rows of matrix D.

11. An imaging system as set forth in claim 2, wherein forming the echelon form of matrix D includes includes column scaling and shifting of matrix D.

12. An imaging system as set forth in claim 2, wherein forming the echelon form of matrix D includes row scaling and shifting of matrix D.

13. An imaging system as set forth in claim 1, further comprising means for supporting said imaging system and said processor means determining whether any of the moving bodies will collide with said means for supporting said imaging system.

14. An imaging system set forth in claim 1, where said processor means identifies moving bodies traveling relative to said means for obtaining a sequence of images.

15. An imaging system as set forth in claim 1, where said processor means identifies the motion of the moving bodies relative to said means for obtaining a sequence of images.

16. An imaging system including a camera, a feature detector, a computer, and a processor for determining the number of independent moving bodies in image flames containing a plurality of moving bodies and associating points in the image with respective bodies for determining the trajectories of the moving bodies comprising;

a camera for recording a sequence of image frames of a scene containing a plurality of moving bodies;

a feature detector for obtaining image data related to identified points arising from the moving bodies in said sequence of image frames recorded by the camera;

a computer for receiving said image data related to identified points, said computer:

forming a matrix W where column vector w_i of matrix W includes the coordinates of each ith point;

representing the set of all points by M=diag(w_i, w_2, . . . , w_s) where w_p,p=1, . . . , s are point coordinates and there are s bodies and each body has a set of n_p feature points;

forming a block transformation matrix T having entries T_{jp},j=1, . . . , m and p=1, . . . , s, where T_{jp} is the pth object in the jth frame subject to a transformation/projection;

representing the observed data, matrix D, as D=TM where the upper bound on the rank of D is 4 s and the lower bound is s, where s is the number of independent moving bodies;

forming the echelon form of matrix D; and

providing output data commensurate with the number of independent bodies in the image and with which points are associated with respective bodies from the echelon form of matrix D where columns having non-zero elements in the same row correspond to points belonging to same rigid body if matrix T has full rank and where the rank of echelon form of matrix D is related to a lower bound on the number of independent bodies in the image, and

a processor for receiving said output data and determining the trajectories of each moving body in the sequence of image frames.

17. An imaging system as set forth in claim 16, where when matrix T is not of full rank, said forming a block transformation matrix T comprises deleting a column of matrix T, subtracting a multiple of a row of W from other rows and deleting that row from W.

18. An imaging system as set forth in claim 16, wherein forming the echelon form of matrix D includes selecting a tolerance value.

19. An imaging system, a method as set forth in claim 16, wherein forming the echelon form of matrix D includes selecting a rank tolerance value and a grouping tolerance value.

20. An imaging system, a method as set forth in claim 16, wherein the step of forming the echelon form of matrix D includes applying Gauss-Jordan elimination to rows of matrix D.

21. An imaging system as set forth in claim 17, wherein forming the echelon form of matrix D includes selecting a tolerance value.

22. An imaging system as set forth in claim 17, wherein forming the echelon form of matrix D includes selecting a rank tolerance value and a grouping tolerance value.

23. An imaging system as set forth in claim 17, wherein forming the echelon form of matrix D includes applying Gauss-Jordan elimination to rows of matrix D.

24. An imaging system as set forth in claim 16, further comprising means for supporting said imaging system and said processor determining whether any of the moving bodies will collide with said means for supporting said imaging system.

25. An imaging system as set forth in claim 16, where said processor identifies moving bodies traveling relative to said camera.

26. An imaging system as set forth in claim 16, where said processor identifies the motion of the moving bodies relative to said camera.

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