

# ECE 516 / CS 532 Computer Vision

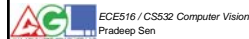
Class 19  
April 21, 2008

Pradeep Sen  
Advanced Graphics Lab



## Announcements

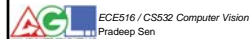
- Project description handed out
- Proposal due Wednesday at midnight



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## Today

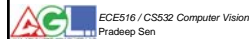
- Multiple view geometry



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## Essential Matrix properties

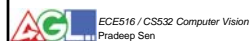
- The essential matrix has five degrees of freedom: both the rotation and translation have 3 each, minus one for scale
- A 3x3 matrix is essential iff only two of its singular values are equal, the third is zero



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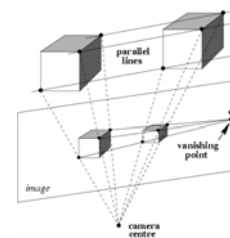
## Fundamental matrix

- A generalization of the essential matrix when the cameras are uncalibrated
- Matrix of rank 2



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## Pure translational motion



source: Hartley and Zisserman



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## Reading

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- Forsyth, Ch. 10 and 11