

ECE 516 / CS 532 Computer Vision

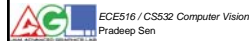
Class 18
April 16, 2008

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Advanced Graphics Lab



Quadrics

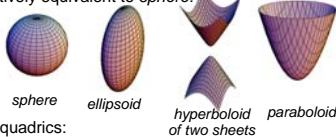
- Quadrics have 9 degrees of freedom: 10 independent elements of 4×4 symmetric matrix – 1 for scale
- Nine points in general position define a quadric
- If the matrix Q is singular, then the quadric is degenerate and may be defined by fewer points
- The intersection of a plane and a quadric is a conic
- Transformation of quadric



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Quadrics

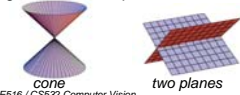
Projectively equivalent to *sphere*:



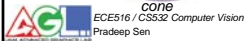
Ruled quadrics:



Degenerate ruled quadrics:



source: Hartley and Zisserman



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