# CS6323.001 - Computer Animation & Gaming
# Final Project Proposal

- *Title* for project - **Spring-Mass-Damper Cloth**

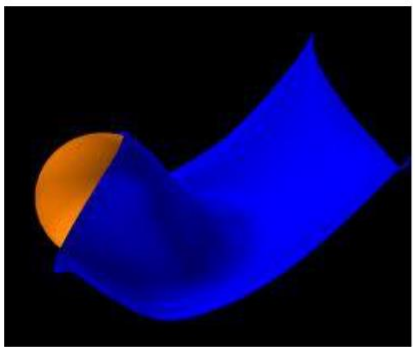
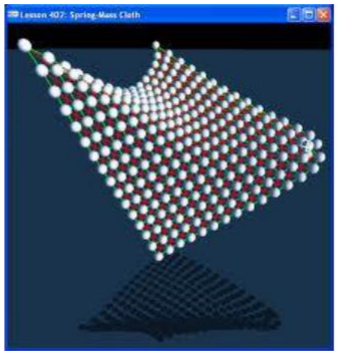
- Your *Name* - **Kapil Gautam**

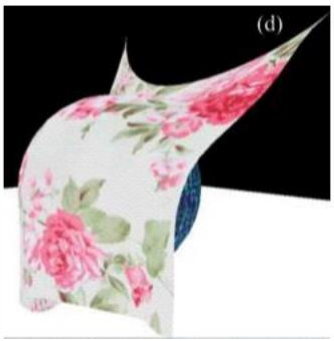
- *Summary-*

  ***Description*** – What is it you are trying to solve/address?
  The objective is to simulate the motion of a cloth and its possible interaction/effect with/around other objects. While interacting with the cloth we can also add the effect of gravity or wind.

  ***Importance*** – Why is this problem important/interesting?
  Cloth is a complicated and interesting subject in computer animation. It is an essential component of many virtual scenes. Creating a cloth interaction with another object can be used in many places.

  ***Your Proposal*** – What is it you plan to do?
  Implement a 10x10 spring-mass-damper mesh to simulate a cloth: the mesh would be in the x-y plane. Fix one or two corner vertices in space. Implement gravity and a pseudo-random wind field as global forces. Some trial-and-error to set the appropriate values for time-delta, mass, spring constant, damper constant, and wind strength.




*Goals* –
- A cloth like mesh
- Each particle of the mesh has some properties, like mass, velocity, acceleration, momentum, force to govern its motion.
- Cloth interaction with some object
- Effect of gravity/wind or any external force on the mesh.
- Cloth in some constraint – two corners fixed cloth falling on a sphere.

- *Work Breakdown –*
  - configurable resolution of the 'cloth' (helps to use low-res cloth when debugging)
  - each vertex has the following attributes:
    - mass
    - current position
    - current velocity
    - accumulated force
    - ‘fixed’ flag (set if this vertex is not allowed to move)
  - each spring has the following attributes:
    - pointer to the two masses it attaches to
    - spring constant
    - damper constant
    - rest length (length in original configuration, for example)