TSBK 07

Computer Graphics

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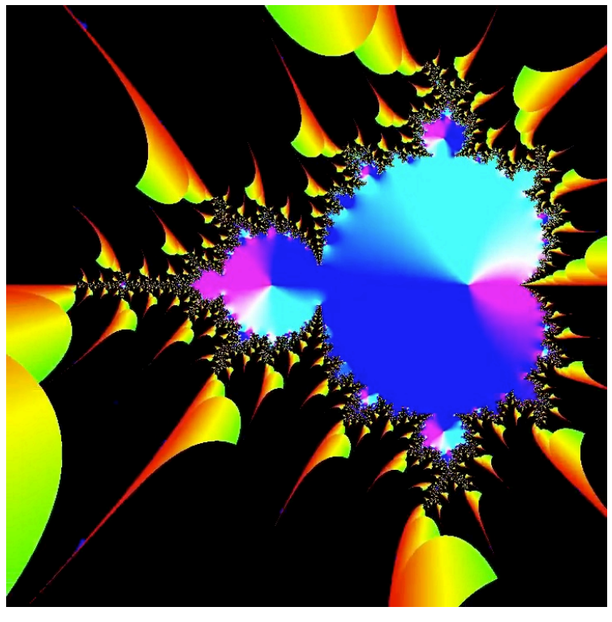


Lecture 9

Rotation around arbitrary axis
Trackball controls

Large worlds, high-level VSD

More (demos) on splines

Animation along splines

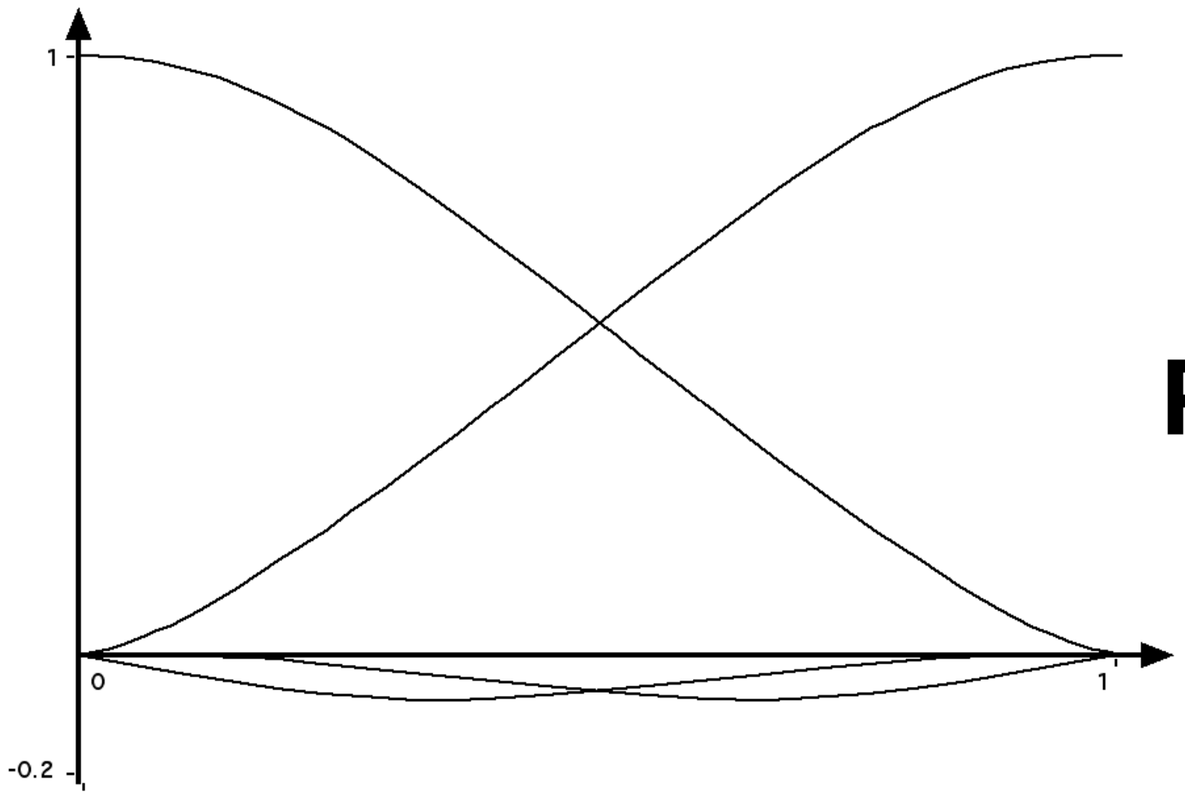
Modelling with spline surfaces

Animation along splines

Typically Catmull-Rom

- Following a spline
- Look at an object following a spline
- Following an object following a spline

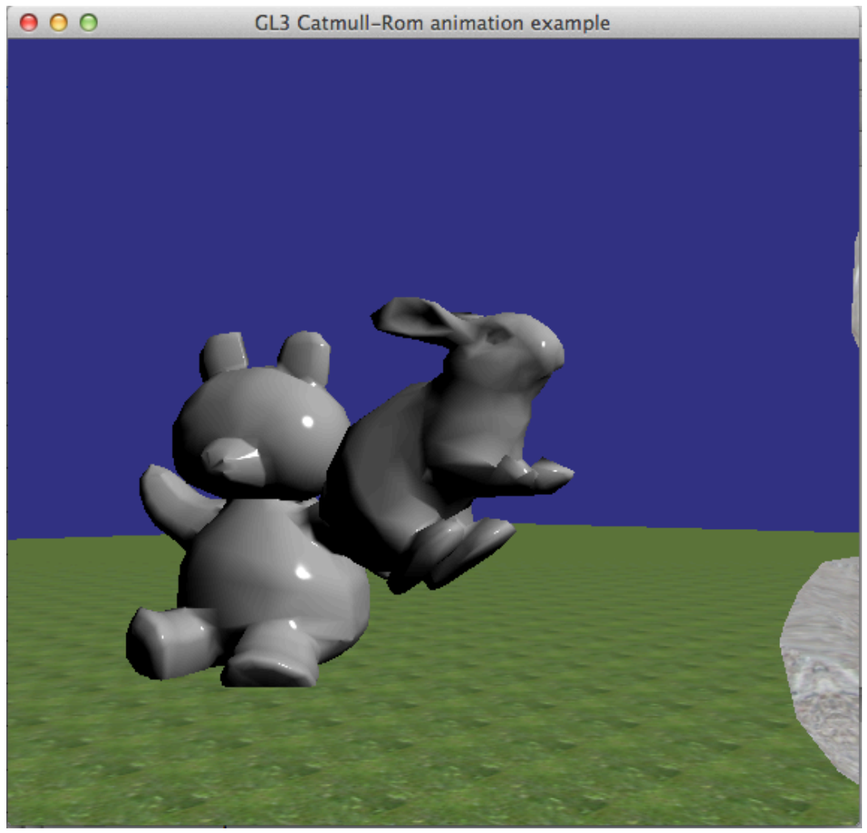
Catmull-Rom splines,
Blending functions

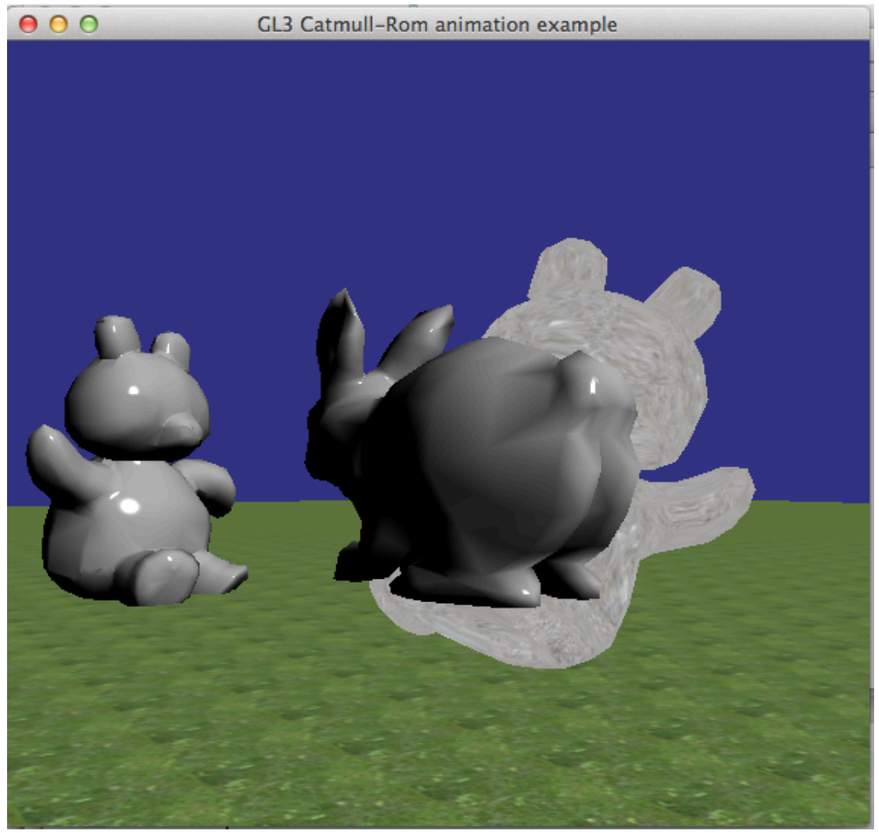


Interpolating spline

Passes through all control points

Live demo with these cases

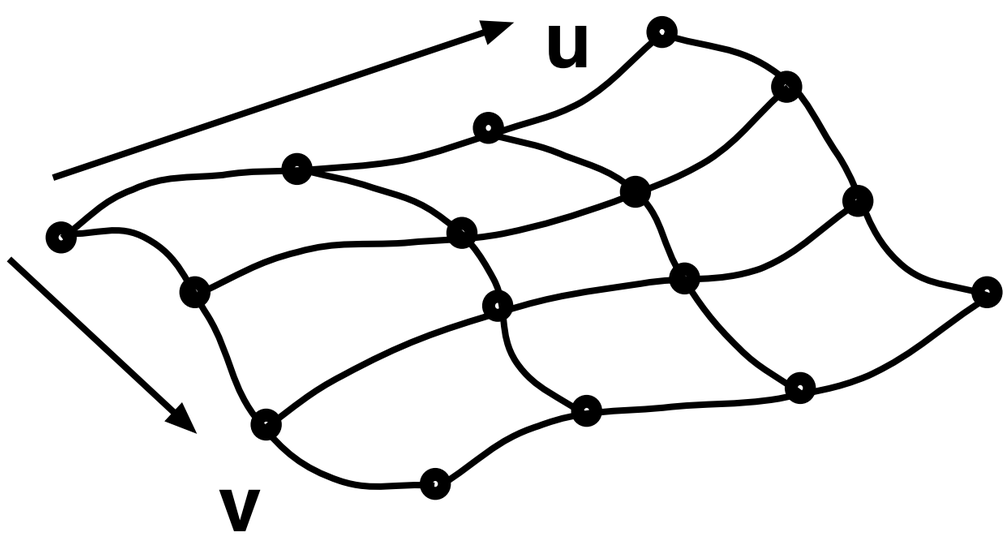




Bézier surfaces

Blending of the 16 control points as a 2-dimensional sum

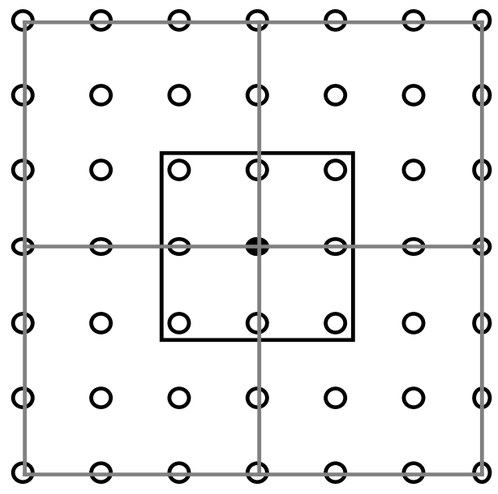
$$P(u,v) = \sum_{j=0}^{3} \sum_{k=0}^{3} p_{j,k}\, BEZ_{j,3}(v)\, BEZ_{k,3}(u)$$



Fitting together patches

Fit in both u and v direction

Make a 3x3 “joystick” at each corner



Live demo with 4 patches

with "joystick" in middle