

Simple 2D Geometric Shape Models

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Geometric Shape Models

Here: rigid, piecewise linear / circular boundary segments

Options:

- Region representation: pixel list, quadtree
- Boundary representation
 - Curve
 - * Set of boundary segments
 - * Pixel list / chain code (incremental pixel list)
 - Vertices

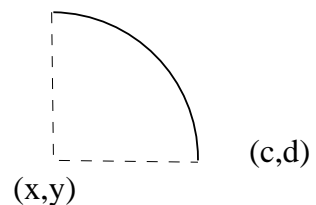
Polycurve / Polyline Modeling

Set of vertices connected by line / curve segments

Line segment: (a,b) -L- (c,d)

Arc segment: (a,b) -arc (x,y) - (c,d)

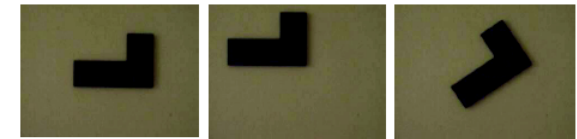
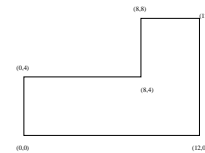
(a,b)



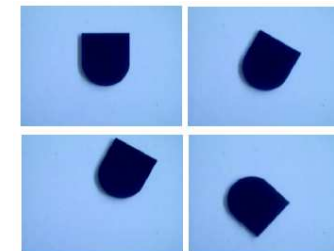
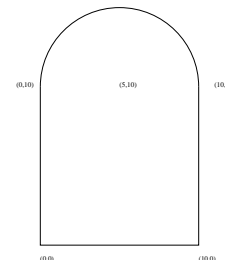
Arbitrary position in local object-centered coordinate system

Example Models

$(0,0)$ -L- $(12,0)$ -L- $(12,8)$ -L- $(8,8)$ -L- $(8,4)$ -L- $(0,4)$ -L- $(0,0)$



$(0,0)$ -L- $(10,0)$ -L- $(10,10)$ -arc $(5,10)$ - $(0,10)$ -L- $(0,0)$



What We Have Learned

1. Simple 2D Rigid Part Modeling