Human Face Image Analysis and Animation Techniques

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In this seminar, our work on human face image analysis and animation will be presented. In our system, we extract facial features, including eyes, eyebrows, glasses, nose, mouth, and face boundary, based on active contours, graph matching and the Delaunay triangulation. We address several difficult problems of human face recognition caused by image distortions, such as scaling, rotation and changes in lighting conditions. We have also developed a non-uniform rational B-spline muscle system to simulate 3D facial expressions based on features extracted from video sequences. The muscles are constructed based on anatomical knowledge and spline curves. By using different numbers of control points on the muscles, detailed facial expressions and mouth shapes can be generated. Our human face analysis and animation systems have many useful applications to security operations and digital entertainment.