

# Current Features Of The CRISP CFD® Mesh Adaptation Code

<b><i>ELEMENTS</i></b>	<ul style="list-style-type: none"> <li>• Tetrahedra, prisms, hexahedra, pyramids</li> <li>• Conforming mesh modifications suitable for any unstructured solver</li> </ul>
<b><i>REFINEMENT / COARSENING</i></b>	<ul style="list-style-type: none"> <li>• Parallel coarsening/refinement using cell migration scheme</li> <li>• Delaunay cavity refinement with circumcenter point insertion</li> <li>• Subdivision of pyramid/prism/hexahedral elements with hanging node closure</li> <li>• Edge collapse of tetrahedral cells</li> <li>• Surface projection using local quadratic fit</li> </ul>
<b><i>INTERFACING</i></b>	<ul style="list-style-type: none"> <li>• Coupled with CRUNCH CFD for transient applications</li> <li>• Automated solution transfer and load rebalancing / repartitioning</li> <li>• Direct support for AVUS, FUN3D, USM3D solvers</li> <li>• Additional filters readily implemented</li> </ul>
<b><i>SENSORS</i></b>	<ul style="list-style-type: none"> <li>• Internal feature-based criterion or user-defined criterion</li> <li>• Cell quality criterion using mesh deformation matrix for moving meshes</li> <li>• Error sources from Error Transport Equation</li> </ul>
<b><i>ERROR QUANTIFICATION</i></b>	<ul style="list-style-type: none"> <li>• Viscous Error Transport Equation</li> <li>• Error Function Library</li> <li>• Generalized Richardson extrapolation</li> </ul>
<b><i>DEVELOPMENTAL</i></b>	<ul style="list-style-type: none"> <li>• Mesh movement (r-refinement) schemes using linear and torsional springs</li> <li>• Refinement about arbitrary input surfaces</li> </ul>