## GOAL ORIENTED MESH ADAPTATION WITHOUT FINE GRID INTERPOLATION FOR FINITE-VOLUME CFD

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**Abstract.** In aeronautical CFD, engineers require accurate predictions of the forces and moments but they are less concerned with flow-field accuracy. Hence, the so-called "goal oriented" mesh adaptation strategies have been introduced to get satisfactory values of functional outputs at an acceptable cost, using local node displacement and insertion of new points rather than mesh refinement guided by uniform accuracy[2, 3, 4, 5, 6]. Most often, such methods involve the adjoint vector of the function of interest. Our purpose is to present goal oriented criteria of mesh quality and local mesh adaptation strategies in the framework of finite-volume schemes and a discrete adjoint vector method [1]. They are based on the total derivative of the goal with respect to (w.r.t.) mesh nodes. More precisely, a projection of the goal derivative, removing all components corresponding to geometrical changes in the solid walls or the support of the output [7]. The methods are assessed in the case of 2D and 3D Euler flow computations, with structured and unstructured meshes.

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