HIGH ORDER RECOVERY OF GEOMETRIC INTERFACES FROM CELL-AVERAGE DATA

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In image processing edge-adapted methods are used to reconstruct high-resolution images from coarser cell averages. When images are piecewise smooth functions, interfaces can be approximated by a pre-specified functional class through optimization LVIRA or specific pre-processing ENO-EA. First we present a framework to analyze the reconstruction capabilities of non-linear families and use it to prove that LVIRA is a second order method. Then we show how to build fast higher order methods to reconstruct interfaces as well as two strategies to deal with non-smooth interfaces presenting corners.