1003-X1-374 **Albert W Schueller*** (`schuelaw@whitman.edu`), Albert Schueller, Department of Mathematics, Whitman College, Walla Walla, WA 99362. *Cellular Automata Based Computation of Discrete Voronoi Diagrams.*

A cellular automata based method for computing discrete Euclidean Voronoi diagrams is presented. Analysis of the algorithm incorporates properties of the cell grid geometry as well as cell neighbor set geometry. The algorithm is highly parallelizeable and exhibits run time costs that are independent of the number of cluster centers. For clarity, the results presented are based primarily in two-dimensional space, but are readily extended to higher dimensions and non-rectangular and non-uniform cell grids. (Received September 13, 2004)