Abstract

Computational geomtery focused on design and algorithm analysis for geometrical problem. Method that usually used in computational geometry is Voronoi diagram. Voronoi diagram is a diagram that divides plane based on nearest neighbour approach. In Voronoi diagram, there are some variation including order-1 Voronoi diagram and higher order Voronoi diagram. Each variation of Voronoi diagram has different method in its construction. In the other hand from ordinary and higher order Voronoi diagram. There are new variation that named Highest Order Voronoi Diagram (HSVD). HSVD has two main advantages. First, order m, where this order can be use directly two identify farthest points and region, second is highest order Voronoi diagram has identification distance for each region that can be used for application which is need region with distance information. But in FLIP method has deficiency in memory usage. Data structure for its construction make large memory usage that make HSVD construction heavy. From that deficiency, construction for highest order Voronoi diagram needs optimization for increase perfomance construction of HSVD. Hence, increasing perfomance of HSVD construction will be use new method. The new method is Left with Least-Angle Movement (LAM). By using LAM method, memory usage in LAM method just use 43% from memory usage in FLIP method, but execution time is longer that FLIP method. For amount of generator point above 20 needs increasing in precision of points so that can construct bigger amount of generator point .

Keyword : *spatial,* diagram *Voronoi, highest order,* optimization, LAM.