Folding a sequence $S$ into a multidimensional box is a well-known method which is used as a multidimensional coding technique. The operation of folding is generalized in a way that the sequence $S$ can be folded into various shapes and not just a box. The new definition of folding is based on a lattice tiling for the given shape $S$ and a direction in the $D$-dimensional integer grid. Necessary and sufficient conditions that a lattice tiling for $S$ combined with a direction define a folding of a sequence into $S$ are derived. The immediate and most impressive application is some new lower bounds on the number of dots in two-dimensional synchronization patterns. The technique and its application for two-dimensional synchronization patterns, raise some interesting problems in discrete geometry. By using the new definition of folding, multidimensional pseudo-random arrays with various shapes are generated. The technique is also generalized for any number of dimensions.