Abstract
In the literature, many papers introduced and studied different convexity notions. For example, Kim and Rosenfeld investigated different notions of discrete convex sets, where a set in Euclidean geometry is convex if and only if for any pair of points p1, p2 in a region R, the line segment joining them is completely included in R. In discrete geometry on square grids, this notion refers to the digitally convex convexity. We recall that a polyomino is a finite 4-connected set of unit squares in the lattice \( \mathbb{Z}^2 \). If \( P \) is a polyomino and if for all \( p_1, p_2 \) inside \( P \) and such that the discrete segment joining them is completely included in \( P \) then \( P \) is a digitally convex polyomino. Digitally convex polyominoes are also the discretization of convex sets of \( \mathbb{R}^2 \), except when this discretization is not 4-connected. It implies that the intersection of two such polyominoes is also digitally convex, as soon as it is 4-connected. In this talk, we would like to study discrete geometrical constructions to deflate or inflate digitally convex polyominoes.