

Maxim Gumin's Wave Function Collapse (WFC) is a recent algorithm used for procedural content generation. The algorithm uses constraint solving and local similarity to generate outputs. However, it struggles to generate large or complex outputs. We aim to generalize the original work to make the algorithm work hierarchically on several different granularities. We show that this approach is promising and yields better results than the original algorithm in several challenging domains. Our approach also provides better controllability of the outcome. The algorithm has applications in the field of procedural content generation to generate different kinds of 2D game levels. It can provide good variability for the players and save the time of game designers.