"The Cross-Over and Patch Algorithms for Wavelet Sets in $\mathbb{R}^2$"

by

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Abstract: We have two algorithms to generate classes of wavelet sets in $\mathbb{R}^2$: The crossover algorithm and the patch algorithm.

Using any partition of the inner square, $\left[ -\frac{\pi}{2}, \frac{\pi}{2} \right] \times \left[ -\frac{\pi}{2}, \frac{\pi}{2} \right]$, into four pieces $X_\oplus, X_\ominus, Y_\oplus, Y_\ominus \subseteq \left[ -\frac{\pi}{2}, \frac{\pi}{2} \right] \times \left[ -\frac{\pi}{2}, \frac{\pi}{2} \right]$ such that $X_\oplus$ is in the right half-inner square, $X_\ominus$ is in the left half-inner square, $Y_\oplus$ is in the upper half-inner square and $Y_\ominus$ is in the lower half-inner square, our crossover algorithm generates a wavelet set in $\mathbb{R}^2$. We have results for the patch wavelet model as well.