SVD Compression. Imagine that each pixel in the picture to the left is a number, then the image to the left is a matrix with 300 rows and 400 columns. Also let each number be between 0 and 1 with the colors of the rainbow continuously mapped into $[0,1] \in \mathbb{R}$. Call this matrix $A \in \mathbb{R}^{300 \times 400}$. If $A = U\Sigma V^T$ is its SVD and $rank(A) = 300$, then the images below are the closest matrices of rank $k = 5$, 8, 10, 20, 30, and 50 respectively.

Each image below is of the form $X = \sum_{i=1}^{k} u_i \sigma_i v_i^T$.