

$$\sigma \left(\lambda_1 \frac{\mathbf{a}_1}{\|\mathbf{a}_1\|} \frac{\mathbf{b}_1}{\|\mathbf{b}_1\|} \frac{\mathbf{c}_1}{\|\mathbf{c}_1\|} + \lambda_2 \frac{\mathbf{a}_2}{\|\mathbf{a}_2\|} \frac{\mathbf{b}_2}{\|\mathbf{b}_2\|} \frac{\mathbf{c}_2}{\|\mathbf{c}_2\|} + \dots + \lambda_n \frac{\mathbf{a}_n}{\|\mathbf{a}_n\|} \frac{\mathbf{b}_n}{\|\mathbf{b}_n\|} \frac{\mathbf{c}_n}{\|\mathbf{c}_n\|} \right) =$$

The diagram illustrates the SVD decomposition of a 3D tensor. On the left, a sum of rank-1 tensors is shown. Each term consists of a vertical red rectangle (labeled $\frac{\mathbf{a}_i}{\|\mathbf{a}_i\|}$), a horizontal green rectangle (labeled $\frac{\mathbf{b}_i}{\|\mathbf{b}_i\|}$), and a blue parallelogram (labeled $\frac{\mathbf{c}_i}{\|\mathbf{c}_i\|}$) meeting at a corner, with a scalar λ_i . The terms are summed from $i=1$ to $i=n$. On the right, the result is a single 3D cube where the front face is red-hatched, the side face is green-hatched, and the top face is blue-hatched.