

$$\begin{array}{ccccccc}
 \mathbf{X} & & \vec{\mathbf{W}}_1 & & \vec{\mathbf{W}}_2 & & \vec{\mathbf{W}}_3 & & \dots & & \vec{\mathbf{W}}_c & & \epsilon \\
 \begin{array}{c} \text{Brain MRI slice 1} \\ \text{Brain MRI slice 2} \\ \text{Brain MRI slice 3} \end{array} & = & S_1 \times \begin{array}{c} \text{Weighted slice 1.1} \\ \text{Weighted slice 1.2} \\ \text{Weighted slice 1.3} \end{array} & + & S_2 \times \begin{array}{c} \text{Weighted slice 2.1} \\ \text{Weighted slice 2.2} \\ \text{Weighted slice 2.3} \end{array} & + & S_3 \times \begin{array}{c} \text{Weighted slice 3.1} \\ \text{Weighted slice 3.2} \\ \text{Weighted slice 3.3} \end{array} & \dots & + & S_c \times \begin{array}{c} \text{Weighted slice c.1} \\ \text{Weighted slice c.2} \\ \text{Weighted slice c.3} \end{array} & + & \begin{array}{c} \text{Residual slice 1} \\ \text{Residual slice 2} \\ \text{Residual slice 3} \end{array}
 \end{array}$$

Diagram illustrating a linear combination of weighted brain MRI slices to reconstruct an input slice \mathbf{X} .

The input slice \mathbf{X} is reconstructed as the sum of weighted slices $S_i \times \vec{\mathbf{W}}_i$ for $i = 1, 2, 3, \dots, c$, plus a residual term ϵ .

The weights $\vec{\mathbf{W}}_1, \vec{\mathbf{W}}_2, \vec{\mathbf{W}}_3, \dots, \vec{\mathbf{W}}_c$ are applied to the input slices to produce the weighted slices $S_1 \times \vec{\mathbf{W}}_1, S_2 \times \vec{\mathbf{W}}_2, S_3 \times \vec{\mathbf{W}}_3, \dots, S_c \times \vec{\mathbf{W}}_c$.