



$$\begin{aligned}
 S_i(t) &= [t^3 \quad t^2 \quad t \quad 1] \frac{1}{6} \begin{bmatrix} -1 & 3 & -3 & 1 \\ 3 & -6 & 3 & 0 \\ -3 & 0 & 3 & 0 \\ 1 & 4 & 1 & 0 \end{bmatrix} \begin{bmatrix} p_{i-1} \\ p_i \\ p_{i+1} \\ p_{i+2} \end{bmatrix} \\
 &= \frac{1}{6} \left[\underbrace{-t^3 + 3t^2 - 3t + 1}_{S_1} \quad \underbrace{3t^3 - 6t^2 + 4}_{S_2} \quad \underbrace{-3t^3 + 3t^2 + 3t + 1}_{S_3} \quad \underbrace{t^3}_{S_4} \right] \begin{bmatrix} p_{i-1} \\ p_i \\ p_{i+1} \\ p_{i+2} \end{bmatrix} \\
 &= \mathbf{S} \cdot \mathbf{P}
 \end{aligned}$$

de Boor control points

