

3. ZADATAK

$$b_{i,m}(u) = \binom{m}{i} (1-u)^{m-i} u^i$$

za $m=3$:

$$b_{i,3}(u) = \binom{3}{i} (1-u)^{3-i} u^i$$

Baza je su Bernstein polinomi stupnja $m=3$:

$$\left. \begin{aligned} b_0(u) &= (1-u)^3 \\ b_1(u) &= 3u(1-u)^2 \\ b_2(u) &= 3u^2(1-u) \\ b_3(u) &= u^3 \end{aligned} \right\} \Rightarrow T(u) = (1-u)^3 p_0 + 3u(1-u)^2 p_1 + 3u^2(1-u) p_2 + u^3 p_3$$

Za proizvoljni $u \in [0,1]$ i

$$r_i = (1-u)r_i + ur_{i+1}, \quad i=0,1,2$$

$$s_i = (1-u)s_i + us_{i+1}, \quad i=0,1,2$$

$$t_0 = (1-u)s_0 + us_1$$

VRIJEDI $f(m) = t_0$

$$t_0 = (1-u)s_0 + us_1$$

$$= (1-u)((1-u)r_0 + ur_1) + u((1-u)r_1 + ur_2)$$

$$= (1-u^2)r_0 + 2u(1-u)r_1 + u^2r_2 =$$

$$= (1-u^2)((1-u)p_0 + up_1) + 2u(1-u)((1-u)p_1 + up_2)$$

$$+ u^2((1-u)p_2 + up_3)$$

$$= (1-u)^3 p_0 + 3u(1-u)^2 p_1 + 3u^2(1-u) p_2 + u^3 p_3 = T(u)$$