

RLS in terms of g_i & $r(i)$

Define gain vector as

$$g_i = P_{i-1} u_i^* r(i)$$

$$r(i) = \frac{1}{1 + \|u_i\|_{P_{i-1}}^2}$$

Then RLS eqn become

$$w_i = w_{i-1} + g_i^* e(i)$$

$$P_i = P_{i-1} + \frac{g_i g_i^*}{r(i)}$$

We also defined

a priori error

posteriori error