Collection of equations:

$$h_0 c_0 + 2(h_0 + h_1)c_1 + h_1 c_2 = \frac{3}{h_1}(a_2 - a_1) - \frac{3}{h_0}(a_1 - a_0)$$

$c_0 + 3d_0 h_0 = c_1$ ← C^2 constraint

$a_0 + b_0 h_0 + c_0 h_0^2 + d_0 h_0^3 = a_1$ } continuity

$a_1 + b_1 h_1 + c_1 h_1^2 + d_1 h_1^3 = a_2$ } constraints

$b_0 + 2c_0 h_0 + 3d_0 h_0^2 = b_1$ ← C^1 constraint