A bounded linear operator $T$ on a complex Hilbert space $\mathcal{H}$ is called complex symmetric if there exists an isometric and antilinear involution $C$ of $\mathcal{H}$ such that $T = C T^* C$. We study the complex symmetry of composition operators $C_\varphi f = f \circ \varphi$, induced on the weighted Hardy spaces $H^2(\beta)$ by analytic self-maps $\varphi$ of the open unit disk $\mathbb{D}$. We provide necessary conditions for $C_\varphi$ to be complex symmetric on $H^2(\beta)$. Moreover, we give a characterization of non-automorphic linear fractional symbols $\varphi$ such that $C_\varphi$ is complex symmetric on the weighted Bergman spaces $A^2_\alpha(\mathbb{D})$. This is joint work with Sivaram Narayan and Daniel Sievewright. (Received January 16, 2019)