The evolution of the activator in the LI model is given by

$$u' = c\frac{\partial^2 u}{\partial x^2} + a - u - 2u^2 v + 3u^2(t-\tau)v(t-\tau), \tag{1}$$

for some delay $\tau > 0$. Here $u = u(t)$ and $v = v(t)$, and $c > 0$ is some constant. We also use the notation $u' = \frac{\partial u}{\partial t}$ to be the partial time-derivative of u. Taylor expanding the delay terms about $\tau = 0$ up to order $O(\tau^2)$ we get

$$u' = c\frac{\partial^2 u}{\partial x^2} + a - u - 2u^2 v + 3\left[\left(u - \tau u' + \frac{\tau^2}{2}u''\right)^2\right]\left[v - \tau v' + \frac{\tau^2}{2}v''\right]. \tag{2}$$

Expanding out the brackets and simplifying (up to $O(\tau^2)$), we obtain

$$u' = c\frac{\partial^2 u}{\partial x^2} + a - u - 2u^2 v + 3\left[u^2 v - \tau u^2 v' + \frac{1}{2}u^2\tau^2 v'' - 2\tau uvu' + 2\tau^2 uu'v' + \tau^2 uvu''\right] \tag{3}$$