Solving the Law of Cosines for Lat:

$$\sin(H) = \sin(Lat) \cdot \sin(Dec) + \cos(Lat) \cdot \cos(Dec) \cdot \cos(t)$$

$$\sin(H) = \sin(Dec) \cdot \left[\sin(Lat) + \frac{\cos(Lat) \cdot \cos(t)}{\tan(Dec)}\right]$$

Let's assume $\tan(\theta) = \frac{\cos(t)}{\tan(Dec)}$

$$\sin(H) = \frac{\sin(Dec)}{\cos(\theta)} \cdot [\sin(Lat) \cdot \cos(\theta) + \cos(Lat) \cdot \sin(\theta)]$$

$$\sin(H) = \frac{\sin(Dec)}{\cos(\theta)} \cdot \sin(Lat + \theta)$$

Thus:

$$\sin(Lat + \theta) = \frac{\sin(H) \cdot \cos(\theta)}{\sin(Dec)}$$

So,

$$Lat = \sin^{-1}\left(\frac{\sin(H) \cdot \cos\left(\tan^{-1}\left[\frac{\cos(t)}{\tan(Dec)}\right]\right)}{\sin(Dec)}\right) - \tan^{-1}\left(\frac{\cos(t)}{\tan(Dec)}\right)$$