$$c(t) = (r \cos t, r \sin t)$$

$$\vec{T}(c(t)) = \frac{c'(t)}{||c'(t)||} = (-\sin t, \cos t)$$

$$\vec{N}(c(t)) = (\vec{T}_y(c(t)), -\vec{T}_x(c(t))) = (\cos t, \sin t)$$

$$d(c(u), t_0, t) = r \cdot (t - t_0)$$

$$h(t) = d(c(u), t_0, t) \cdot \tan \alpha$$

$$a(t) = c(t) \pm h(t) \cdot \vec{N}(c(t))$$

$$a_x(t) = (1 \pm (t - t_0) \tan \alpha) r \cos t$$

$$a_y(t) = (1 \pm (t - t_0) \tan \alpha) r \sin t$$