Original Kajiya-Kay 1989

$$\text{normalize}(\vec{u}) = \frac{\vec{u}}{\sqrt{\vec{u} \cdot \vec{u}}} \tag{1}$$

$$reflect(\vec{I}, \vec{N}) = 2 * (\vec{I} \cdot \vec{N}) * \vec{N} - \vec{I} \tag{2}$$

Tangent vector:

$$X = \text{normalize}(0, \vec{1}, 0 \times \vec{n}) \tag{3}$$

Bitangent vector:

$$Y = \text{normalize}(\vec{n} \times X) \tag{4}$$

$$T = Y \tag{5}$$

$$\text{roughness} = 0.1 \tag{6}$$

$$\text{glossiness} = (1/\text{roughness}) \tag{7}$$

$$\text{kajiya} = \cos(\arccos(\vec{\omega_i} \cdot T) - \arccos(reflect(\vec{\omega_i}, \vec{n}) \cdot T))^{\text{glossiness}} \tag{8}$$

$$f = \text{kajiya} \tag{9}$$