

Ch03-09

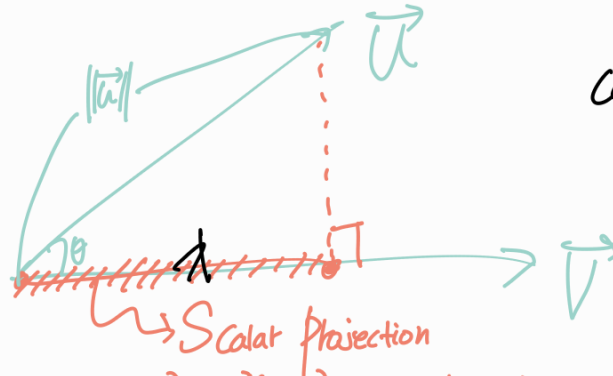
< Projection >

$$\text{Comp}_{\vec{v}} \vec{u} = \frac{\vec{u}^T \cdot \vec{v}}{\|\vec{v}\|}$$

$$\text{Proj}_{\vec{v}} \vec{u} = \text{Comp}_{\vec{v}} \vec{u} \cdot \frac{\vec{v}}{\|\vec{v}\|}$$

$\text{Comp}_{\vec{v}} \vec{u}$  : Scalar projection

$\text{Proj}_{\vec{v}} \vec{u}$  : Vector projection



$$\cos \theta = \frac{\lambda}{\|\vec{u}\|}$$

$$\lambda = \|\vec{u}\| \cos \theta$$

$\text{Comp}_{\vec{v}} \vec{u}$  :  $\vec{v}$  (평행)한 성분이 얼마나 있는지를 나타냄과 같다.

$$\|\vec{u}\| \cos \theta = \frac{(\|\vec{u}\| \cdot \|\vec{v}\| \cos \theta)}{\|\vec{v}\|} = \frac{\vec{u}^T \cdot \vec{v}}{\|\vec{v}\|} \rightarrow \text{값이}$$

Vector projection의 경우, Scalar projection을 벡터로 표현한 것.

벡터로만 바꿔주면 됨.  $\rightarrow$  곱 Unit Vector

$$\text{즉 } \boxed{\lambda \cdot \frac{\vec{v}}{\|\vec{v}\|}}$$