First-order principles

$$\boldsymbol{f} = m\dot{\boldsymbol{v}}$$

$$\boldsymbol{\tau} = \boldsymbol{I}\dot{\boldsymbol{\omega}} + \boldsymbol{\omega} \times \boldsymbol{I}\boldsymbol{\omega}$$

$$\boldsymbol{v} = \boldsymbol{\omega} \times \boldsymbol{r} + \boldsymbol{v}_0$$

$$\dot{\boldsymbol{v}} = \dot{\boldsymbol{\omega}} \times \boldsymbol{r} + \boldsymbol{\omega} \times \boldsymbol{\omega} \times \boldsymbol{r} + \dot{\boldsymbol{v}}_0$$
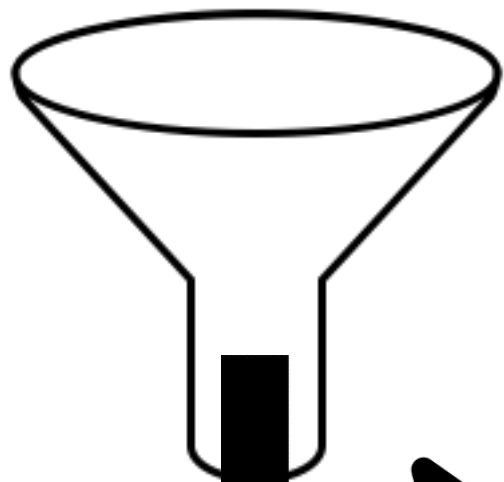
Data-aided learning techniques

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