

Sample document

Guillaume

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Template to write quick and dirty latex

TODO: a sample todo task

TODO

$$\tilde{\mathbb{P}}(x) \neq \tilde{\mathbb{Q}}(x)$$

$$abcde * ghijkl * nopqrstuvwxyz \tag{1}$$

$$ABCDEFGHIJKLMNOPQRSTUVWXYZ \tag{2}$$

$$\tilde{A}\tilde{B}\tilde{C}\tilde{D}\tilde{E}\tilde{F}\tilde{G}\tilde{H}\tilde{I}\tilde{J}\tilde{K}\tilde{L}\tilde{M}\tilde{N}\tilde{O}\tilde{P}\tilde{Q}\tilde{R}\tilde{S}\tilde{T}\tilde{U}\tilde{V}\tilde{W}\tilde{X}\tilde{Y}\tilde{Z} \tag{3}$$

$$\hat{A}\hat{B}\hat{C}\hat{D}\hat{E}\hat{F}\hat{G}\hat{H}\hat{I}\hat{J}\hat{K}\hat{L}\hat{M}\hat{N}\hat{O}\hat{P}\hat{Q}\hat{R}\hat{S}\hat{T}\hat{U}\hat{V}\hat{W}\hat{X}\hat{Y}\hat{Z} \tag{4}$$

$$\left\| \left[\begin{array}{ccccc} 1 & 2 & 3 & 4 & 5 \\ 3 & 4 & 5 & 6 & 7 \\ & & \vdots & & \\ 13 & 14 & 15 & 16 & 17 \end{array} \right] \right\|_F \tag{norm}$$

$$\left\| \left\| \left[\begin{array}{ccc} 1 & 2 & 3 \\ 3 & 4 & 5 \end{array} \right] \right\| \right\| \tag{spectral norm}$$

Multiline equation with a single label, with anchors "&"

$$\begin{aligned} \Xi_t = & \frac{\eta_w}{2} \|\nabla_W \mathcal{L}_t\|^2 + \frac{1}{2\eta_w} \|W_t - W^*\|^2 - \frac{1}{2\eta_w} \|W_{t+1} - W^*\|^2 \\ & + \frac{\eta_v}{2} \|\nabla_V \mathcal{L}_t\|^2 + \frac{1}{2\eta_v} \|V_t - V^*\|^2 - \frac{1}{2\eta_v} \|V_{t+1} - V^*\|^2 \end{aligned} \tag{5}$$

Multiline equation with a single label, without anchors "&"

$$\begin{aligned} \frac{1}{2} \sum_{t=0}^{T-1} \|\hat{f}_t(x_t) - c^*(x_t)\|^2 - 2 \sum_{t=0}^{T-1} \left(\|\Delta_t(x_t)\|^2 + \|c^*(x_t) - y_t\|^2 \right) & \leq \sum_{t=0}^{T-1} \Xi_t \\ & \leq \frac{\eta_w}{2} \sum_{t=0}^{T-1} \|\nabla_W \mathcal{L}_t\|^2 + \frac{\eta_v}{2} \sum_{t=0}^{T-1} \|\nabla_V \mathcal{L}_t\|^2 + \frac{1}{2\eta_w} \|W^* - W^{(0)}\|^2 + \frac{1}{2\eta_v} \|V^* - V^{(0)}\|^2 \end{aligned} \tag{6}$$

Multiple equations gathered in a single block (like `align` but centered instead of right-aligned by default, and no anchors "&" allowed)

$$z_t = (x_t, y_t) \tag{7}$$

$$z_{<t} = (z_0, \dots, z_{t-1}) \tag{8}$$

$$z'_t = (x'_t, y'_t) \tag{9}$$

Move the first line to the left

$$\frac{1}{\eta_w T} \sum_{t=0}^{T-1} \left(\|W_t - W^*\|^2 - \mathbb{E}_{z'_t} \|W'_{t+1} - W^*\|^2 \right) \tag{10}$$

$$= \frac{2}{T} \sum_{t=0}^{T-1} \mathbb{E}_{z'} \left\langle \hat{f}_t(x') - y', p_{w,t}(W_t - W^*; x') \right\rangle - \frac{1}{\eta_w T} \sum_{t=0}^{T-1} \|W'_{t+1} - W_t\|^2 \tag{11}$$