$$\text{feedTime}[\text{h}] = \frac{\text{feedVolume}[\text{mL}]}{\text{flowRate}[\text{mL/h}]}$$

$$\text{feedTime}[\text{s}] = 3600 \cdot \text{feedTime}[\text{h}]$$

$$\text{feedConc}[\text{g/mL}] = \frac{\text{comp\_feed\_mass}[\text{g}]}{\text{feedVolume}[\text{mL}]}$$

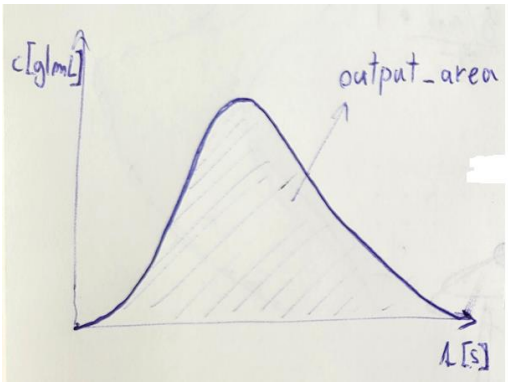
$$\text{comp\_feed\_mass}[\text{g}] = \text{feed\_area}\left[\frac{\text{g}\cdot\text{s}}{\text{mL}}\right] \cdot \text{flowRate}[\text{m/s}]$$

$$\text{flowRate}\left[\frac{\text{mL}}{\text{s}}\right] = \frac{\text{flowRate}[\text{mL/h}]}{3600}$$

$$\text{feed\_area}\left[\frac{\text{g}\cdot\text{s}}{\text{mL}}\right] = \text{feedConc} \cdot \text{feedTime}$$

$$\text{output\_area}\left[\frac{g\cdot s}{mL}\right] = \text{np.trapz}\ (y = c, x = t)$$

$$\text{comp\_output\_mass}\ [g] = \text{flowRate}\left[\frac{mL}{s}\right] \cdot \text{output\_area}\ \left[\frac{g\cdot s}{mL}\right]$$



$$\min \quad \text{Loss\_func(feedTime)} = \sum_{\text{comp}} |\text{comp\_feed\_mass} - \text{comp\_output\_mass}|$$