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

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

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

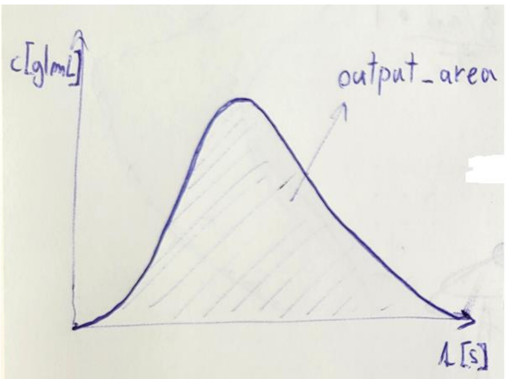
$$\text{comp\_feed\_mass}[\mathrm{g}] = \text{feed\_area}\left[\frac{\mathrm{g\cdot s}}{\mathrm{mL}}\right] \cdot \text{flowRate}[\mathrm{m/s}]$$

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

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

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

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



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