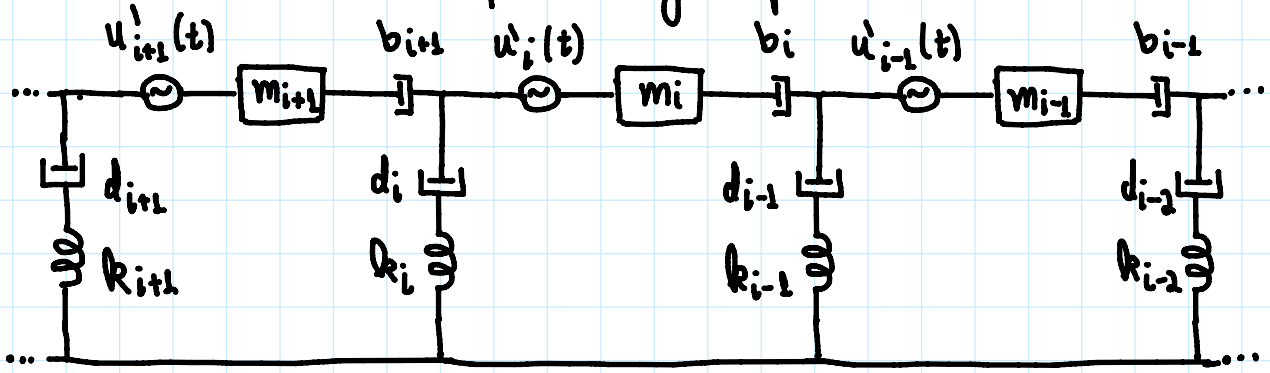
Exercício 7 - Slide analogia tipo 2

quarta-feira, 6 de outubro de 2021 19:52

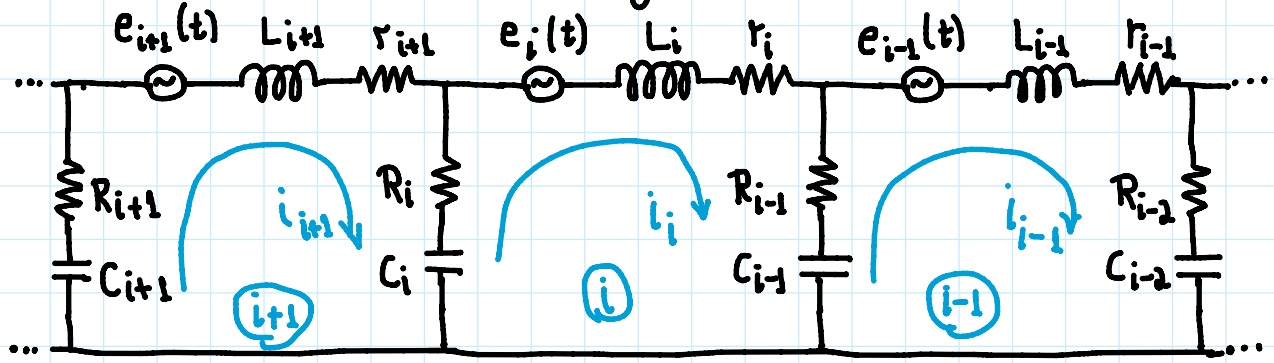
Ex.7

- O circuito mecânico pela analogia tipo 1 fica:



Obs.: $u'_i(t) = u(t) - m_i g \operatorname{sen}(\theta_i)$

- Assim, o circuito elétrico análogo:



- Malha (i):

$$\left(L_i D + r_i + R_i + R_{i-1} + \frac{1}{C_i D} + \frac{1}{C_{i-1} D}\right) i_i - \left(R_{i-1} + \frac{1}{C_{i-1} D}\right) i_{i-1} - \left(R_i + \frac{1}{C_i D}\right) i_{i+1} = e_i(t)$$

- Logo:

$$m_i \ddot{x}_i + (b_i + d_i + d_{i-1}) \dot{x}_i + (k_i + k_{i-1}) x_i = u_i(t) - m_i g \operatorname{sen}\theta_i + d_{i-1} \dot{x}_{i-1} + k_{i-1} \cdot x_{i-1} + d_i \dot{x}_{i+1} + k_i x_i$$