1 Theory

$$\mathcal{L}u\left(x\right) = \lambda u\left(x\right)$$
$$u\left(x_l\right) = u\left(x_r\right) = u_b$$

$$L = \frac{1}{M}\sum_{i=0}^{M-1}\left(\mathcal{L}u\left(x_i,\lambda\right) - \lambda u\left(x_i,\lambda\right)\right)^2 + \alpha_{norm}L_{norm} + \alpha_{drive}L_{drive} \tag{1}$$

$$L_{norm} = \left(\sum_{i=0}^{M-1} u\left(x_i,\lambda\right)^2 + \frac{M}{x_r - x_l}\right)^2 \tag{2}$$

$$L_{drive} = e^{c-\lambda} \tag{3}$$

$$L = \frac{1}{M}\sum_{i=0}^{M-1}\left(\mathcal{L}u\left(x_i,\lambda\right) - \lambda u\left(x_i,\lambda\right)\right)^2 + \alpha_{norm}L_{norm} + \alpha_{ortho}L_{ortho} \tag{4}$$

$$L_{ortho} = \sum_{i=0}^{M-1} u\left(x_i,\lambda\right) u_{prev}\left(x_i,\lambda_{prev}\right) \tag{5}$$

$$u\left(x,\lambda\right) = u_b + g\left(x\right) NN\left(x,\lambda\right)$$
$$g\left(x\right) = (1 - e^{-(x-x_l)^2})(1 - e^{-(x-x_r)^2})$$