

## 1] Vanishing gradients

- Activation functions

- Linear
- Sigmoid
- Tanh
- ReLU
  - Relu variants
    - Linear
      - Leaky ReLU
      - Parametric ReLU
    - Non linear
      - ELU [Exponential linear unit]
      - SeLU [Scaled exponential linear unit]

- Weight initialization

- Xavier / Glorot
  - Normal
  - Uniform
- He initialization
  - Normal
  - Uniform

## 2] Overfitting

- Reduce complexity / Increase data
- Dropout layers
- Regularization (L1 & L2)
- Early stopping

## 3] Normalization

- Normalizing inputs
- Batch normalization
- Normalizing activations

## 4] Gradient checking and clipping

## 5] Optimizers

- Momentum
- NAG [Nesterov accelerated gradient]
- Adagrad [Adaptive gradient]
- RMSprop [ Root mean squared propagation]
- Adam [Adaptive moment estimation]

## 6] Learning rate scheduling

## 7] Hyperparameter tuning

- Number of hidden layers
- Nodes / layer
- Batch size