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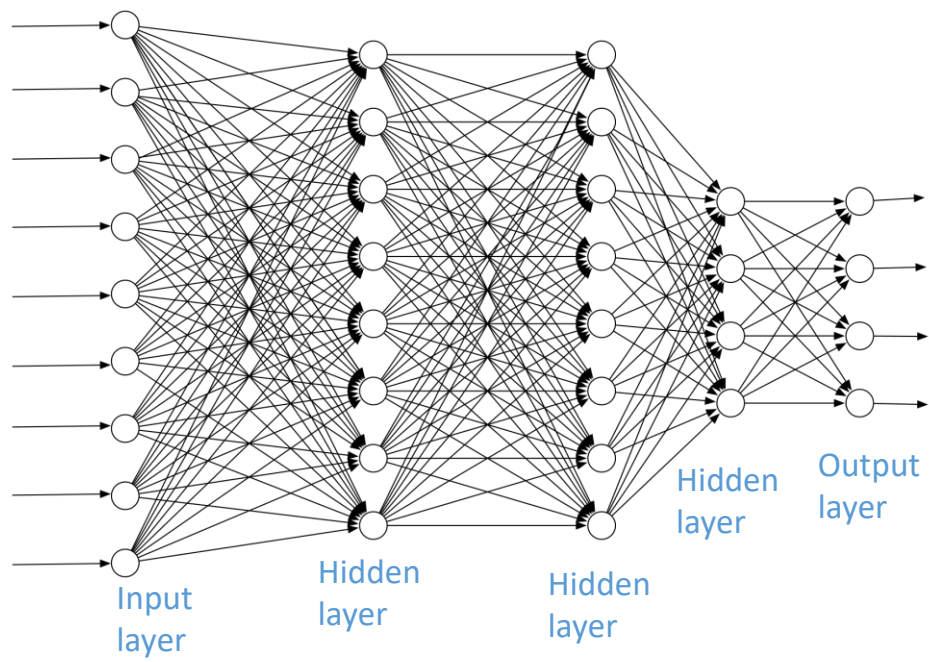
INFO 284 – Machine Learning

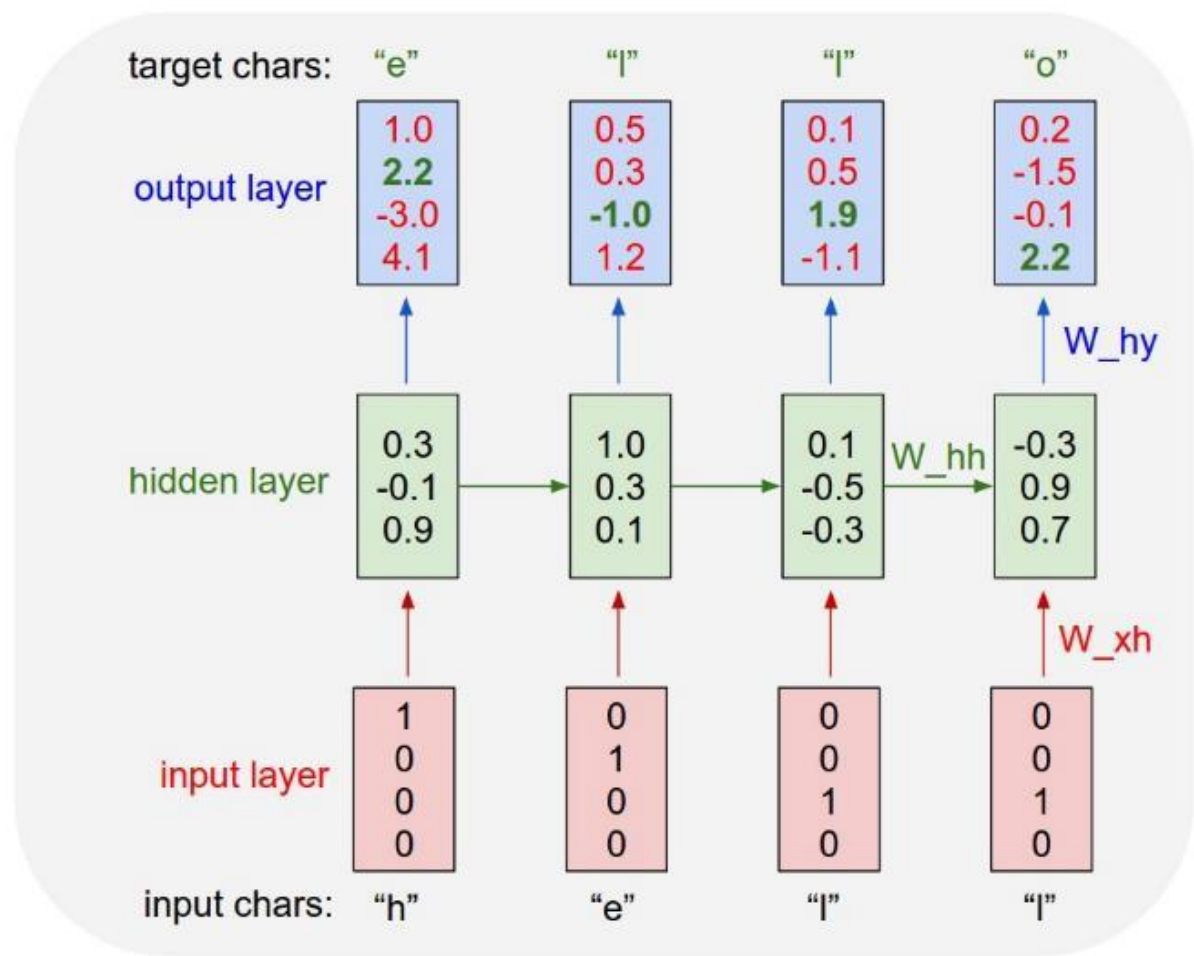
Recurrent Neural Networks

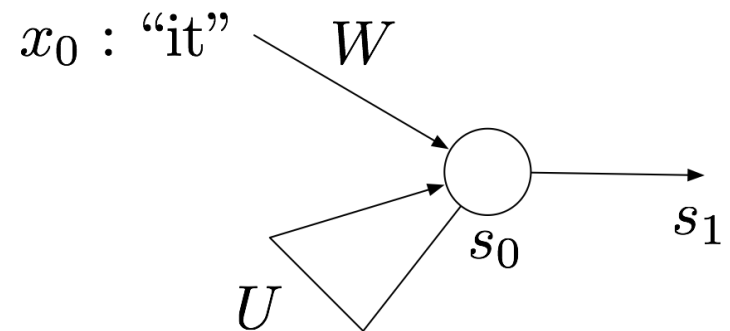
Marija Slavkovik & Bjørnar Tessem

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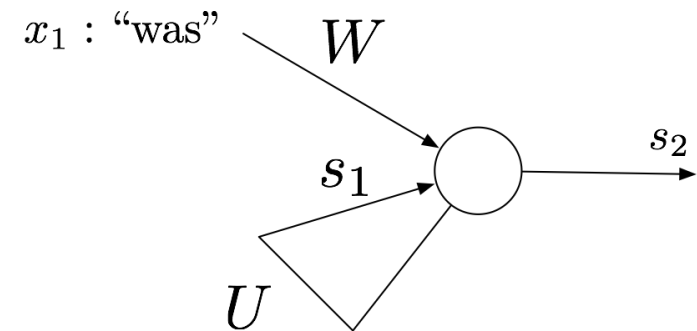




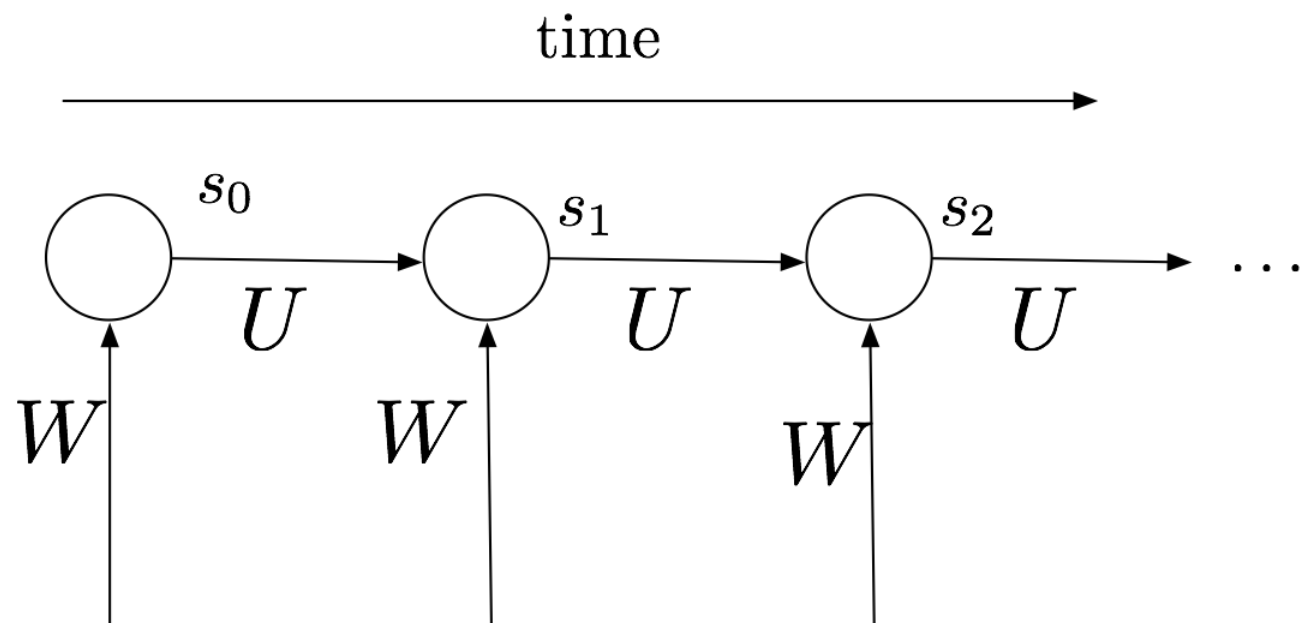


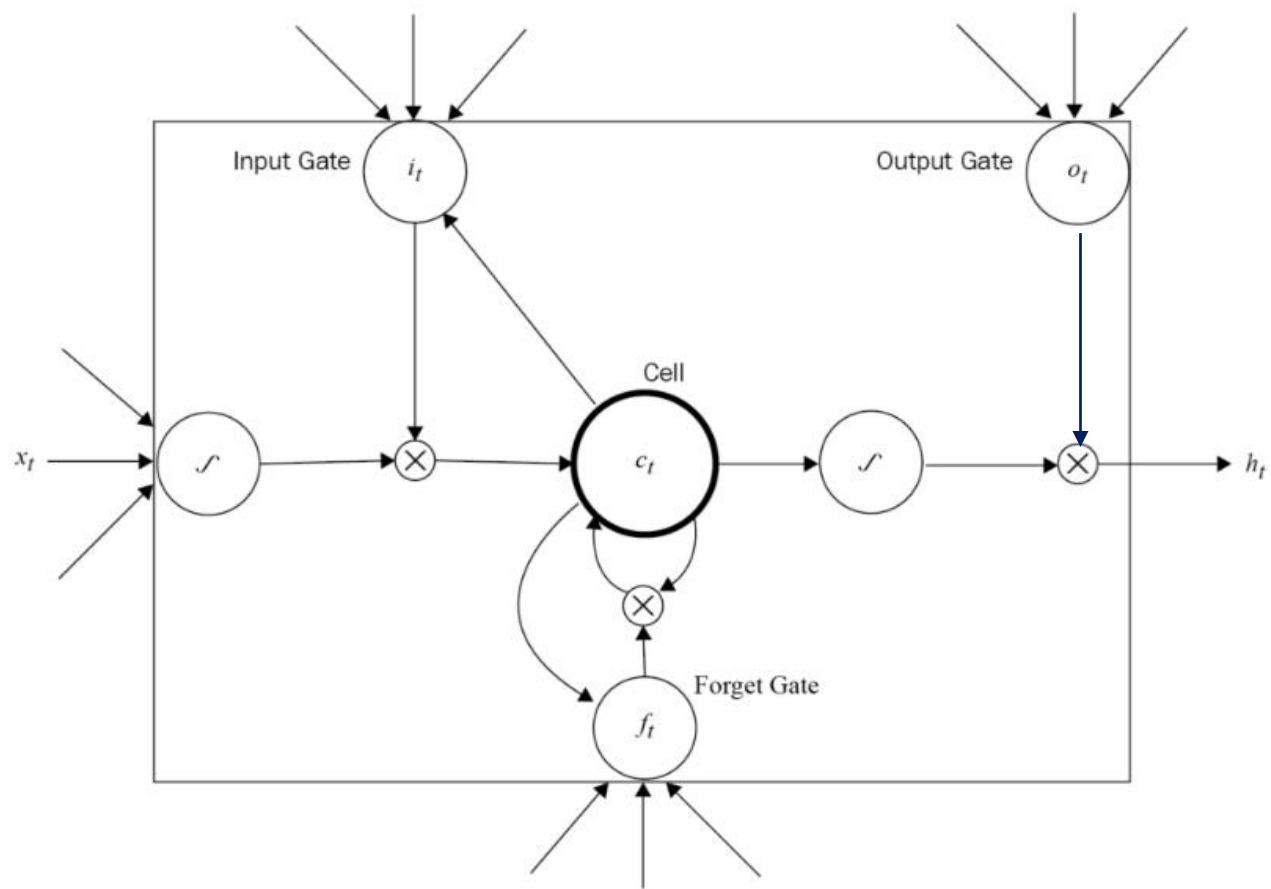


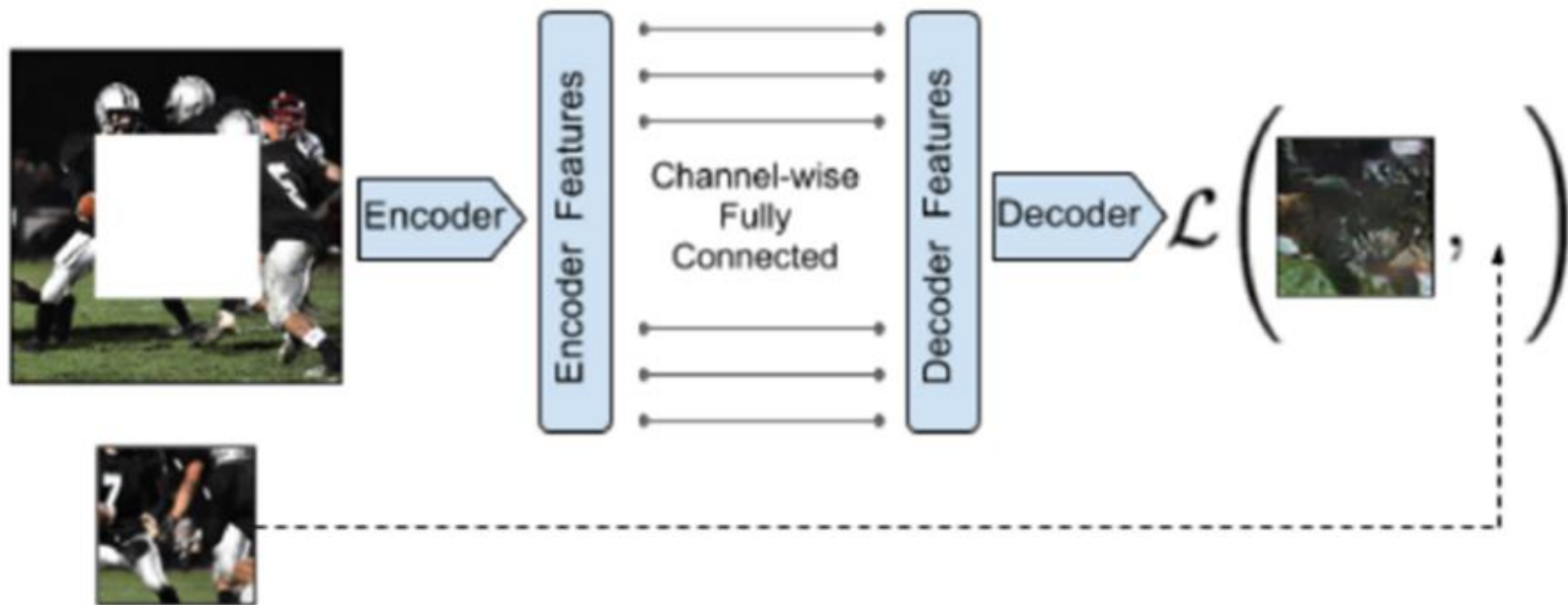
W, U : weight matrices $t = 0$



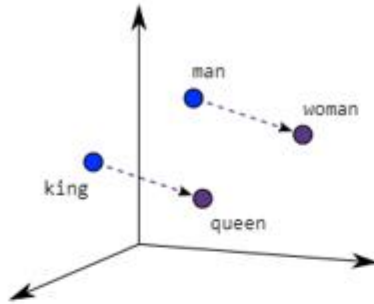
W, U : weight matrices $t = 1$



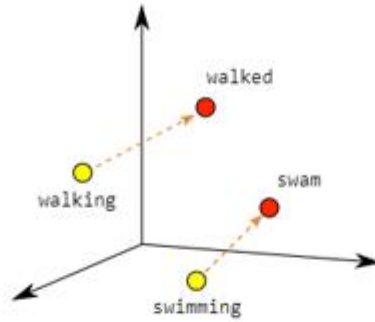




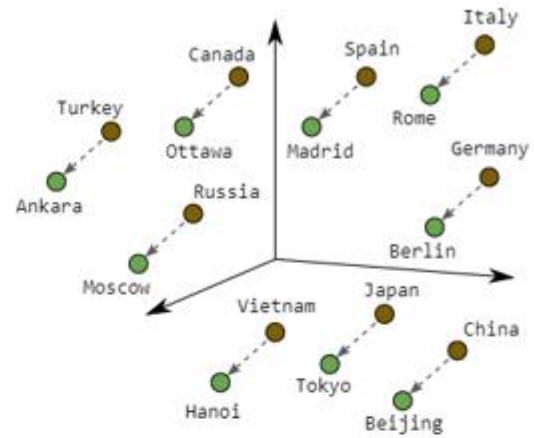
Word2Vec



Male-Female

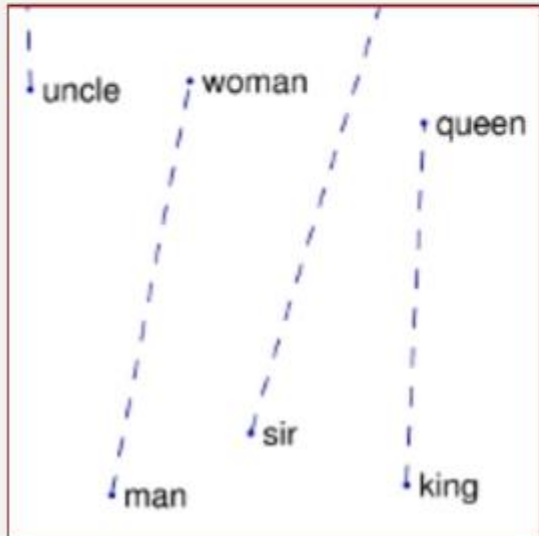


Verb Tense

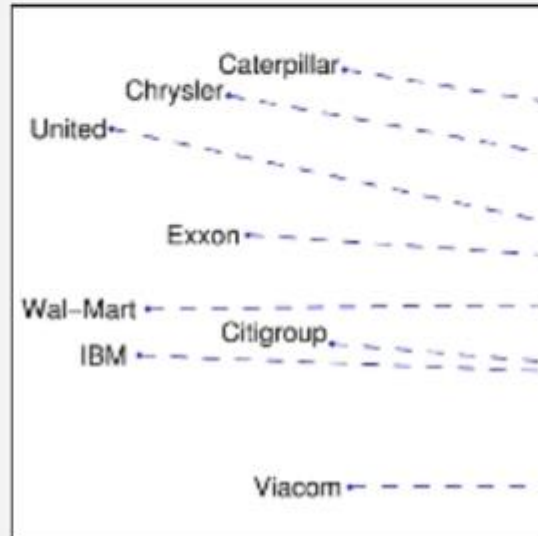


Country-Capital

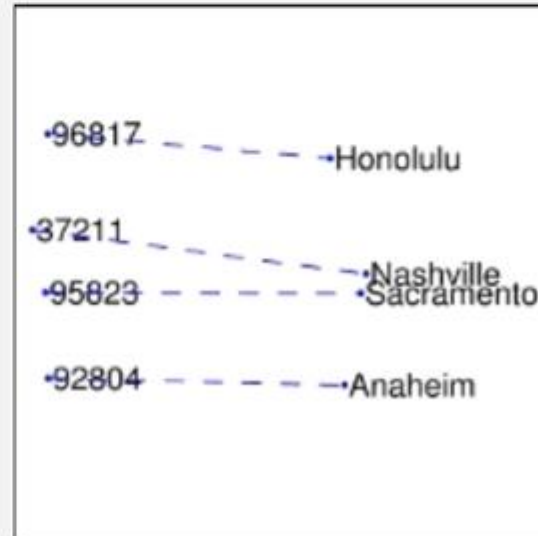
GloVe



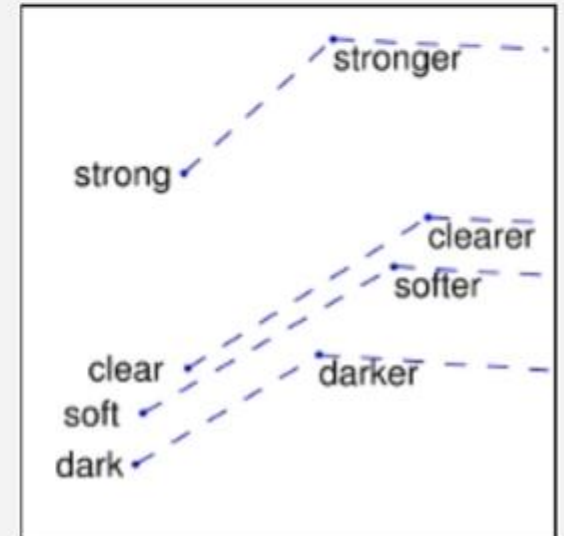
man - woman



company - ceo



city - zip code



comparative - superlative

Neural networks

Types

Perceptrons

Feed-forward networks

- Hidden layers

Convolutional networks

- Convolutional layers
- Pooling layers

Recurrent networks

- Short term memory
- LSTM

Concepts

- Activation functions
 - Sigmoid
 - Tanh
 - Relu
- Loss functions
 - L2
 - Cross entropy
 - Softmax
- Optimization
 - Gradient descent
 - Backpropagation
 - Adam
 - RMSprop
 - LBFGS
- Transfer learning
 - Vision models
 - Language models