Artificial Neural Networks

Keywords:

- Computation graph $f_\theta(x)$
- Forward pass and gradient backpropagation
- Online training
- Minibatches
- The vanishing gradient problem
- Keras, Tensorflow, Caffe, Pytorch, Theano
- Avoiding overfitting: dropout, regularization, data augmentation
- Convolutional neural networks

Artificial Neural Networks

- Versatile, online training
- State-of-the-art performance on many benchmarks
- But fragile and hard to tune
- Lots of "recipes" still today
- Hard to guarantee convergence or performance
- CNNs = method of choice for structured data (images, sound, time series...)