

Administrative

- Check your Kaggle submission again
 - You should select two valid submission for final ranking
 - Kaggle will select top-2 submissions (may be invalid) on public leader board for you if you didn't do it.
- Grade for assignment and quiz will be upload next week.
 - Email us (cs5242@comp.nus.edu.sg) if any problems
- One more lecture recording to be uploaded
- STOP your cloud machines and delete the volumes/storage!
- Give us feed-back about this module
 - Topics
 - Assignment
 - Projects
 - Etc.

Summary

- Intended learning outcomes
 - Basic operations:
 - Understand and implement basic operations
 - Applications
 - Understand and use existing frameworks to implement them

Summary

- MLP
 - Linear feature transformation
 - Non-linear feature transformation
- Back-propagation
- SGD
 - Adam

Summary

- CNN
 - What is convolution?
 - 1D, 2D, 2D with multiple channels
 - Time and memory cost
 - Properties?
 - (Optional) depth-wise convolution, dilated convolution, transposed convolution
 - What is pooling?
 - Average pooling, max pooling, properties?
 - Activation layers
 - Sigmoid, Tanh VS ReLU
 - BatchNormalization
 - Fully connected layer
 - Softmax + cross-entropy
 - Image classification, object detection, image segmentation

Summary

- RNN
 - Vanilla RNN
 - LSTM/GRU/bi-directional RNN
 - Training: BPTT, truncated BPTT, padding
 - Inference: beam-search VS greedy-search
 - language modelling, machine translation, question answering

Not covered topics

- Techniques:
 - Few-shot learning/One-shot learning
 - Deep reinforcement learning
 - Memory networks
- Applications
 - [Satellite images](#)
 - Face images
 - Manufacturing
 - Audio processing
- Coding practice
 - [Fast.ai](#)
 - Kaggle