

Main topic

This week's meeting plan was to go deep into convolutional neural networks and rapidly go over deepvariant insights.

Topics covered

With yanlei only

As a part of the training (on Thursday):

- Introduced linear classifiers and regression and the need for non linear transformation.
- Introduced the pattern of linear unit followed by a non linearity (called activation)
 - $z = Wx + b$
 - $a = f(z)$

As a part of the training (on Friday):

- Neural network as parametrized function approximator.
- Distance between functions as a loss function.
- Modular backpropagation for computing derivatives in a computational graph:
 - Each layer (index l) has an input z^{l-1} , an output z^l and parameters θ^l
 - Each layer only needs to specify $\frac{\partial z^l}{\partial z^{l-1}}$ and $\frac{\partial z^l}{\partial \theta^l}$
- Introduced the notion of computational graph and layers as node of the graph.

With everyone

- The plan was not exactly followed and most of the time was spent on finishing up the analysis of deep variant, both insights and drawbacks.
- We decided to focus for the time being on Structural Variants calling.
- We quickly talked about RNNs (stateful neural networks).

Topics not covered

- Convolutional neural networks.

Remarks on the presentation

- I failed to do a good summary of last weeks meeting (on Thursday and Friday), which I will do from now on.
- I did not write a summary of deep variants with schemas, which was done on Friday (attached in the email).

Plan for next week

- Present the maths behind Convnets as well as some history (are you ok with that profesor ?)
- If time permits it, investigate use of RNNs for SV calling.