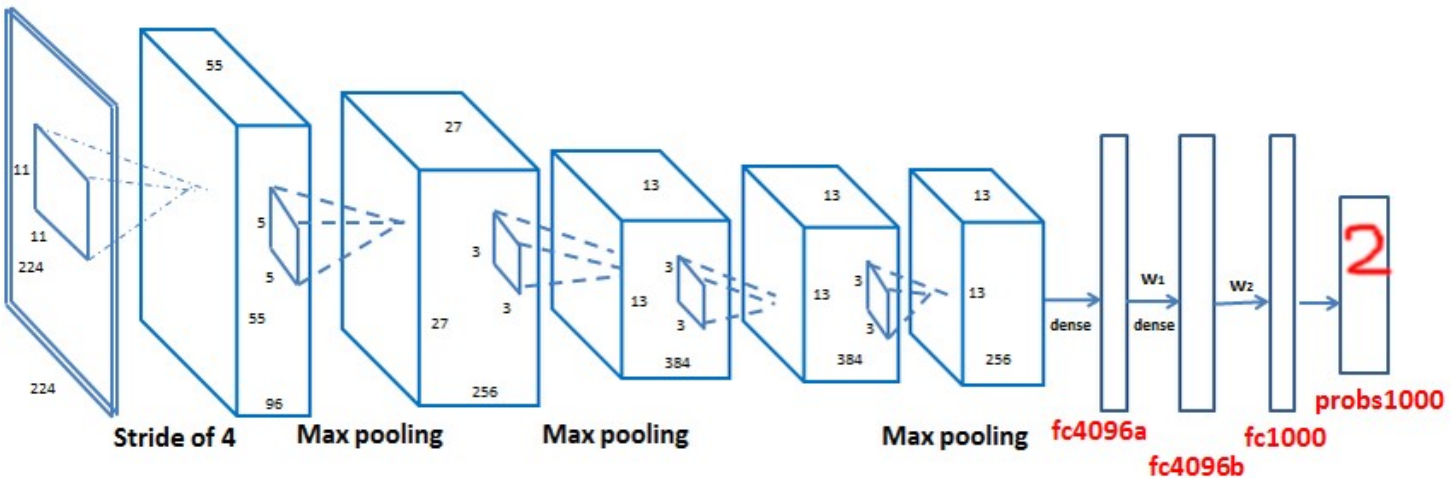
Crack detection

paper

- Comparison of deep convolutional neural networks and edge detectors for image-based crack detection in concrete – 2018
  - Data set: SDNet2018
  - An overall performance comparison between image processing technique and deep learning (train from scratch + transfer learning)

Training Alexnet from scractch on Alexnet architecture

- Original Alexnet architecture
  - Batch normalization + Dropout(0.4) + Max Pooling

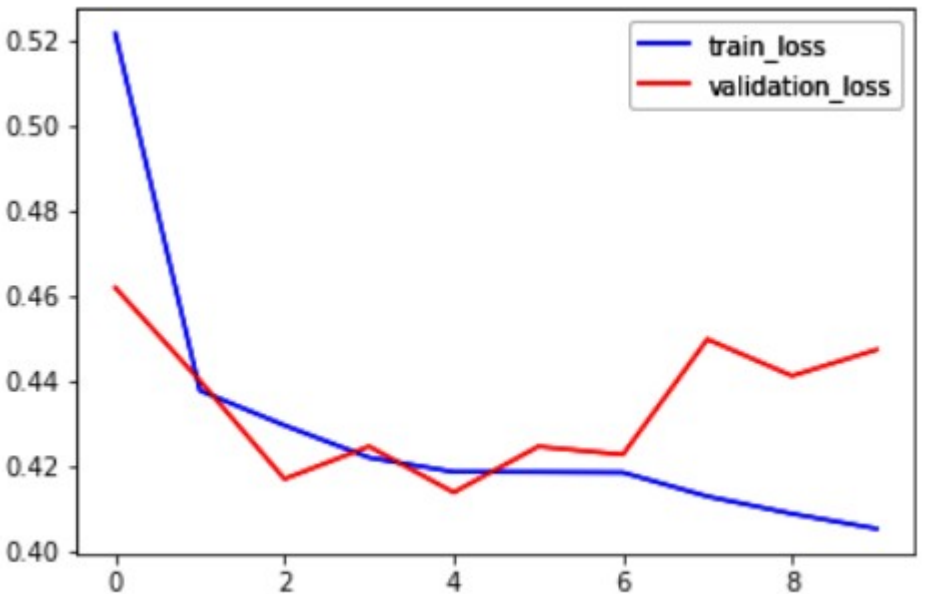


Training Alexnet from scractch on Alexnet data set

- Data set
  - 50,000 images
    - Training: 36459 images, 365 batches/epoch
    - Validation: 8413 images
    - Testing: 11220 images

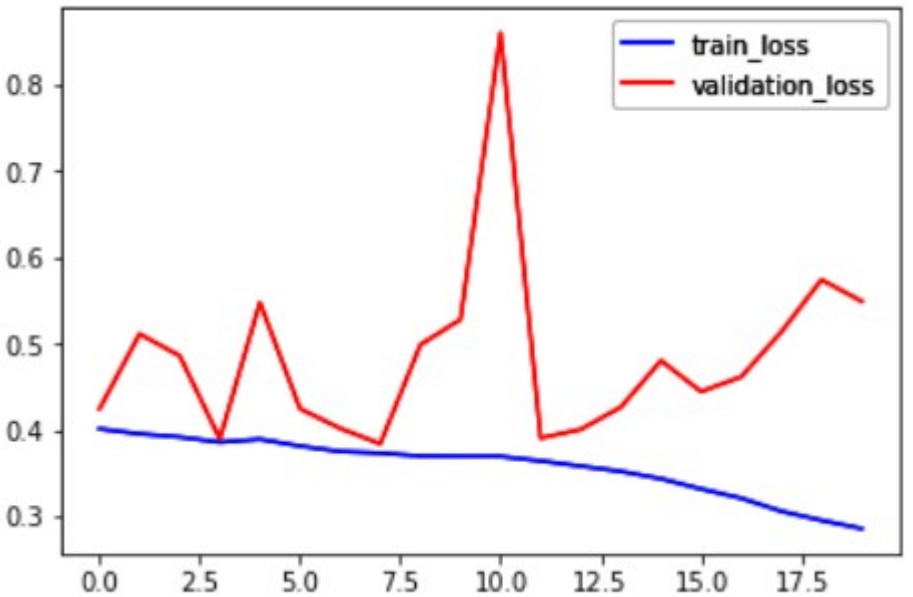
Training Alexnet from scractch on Alexnet training

- Profile:
  - Optimizer: **lr**=0.002, beta_1=0.9, beta_2=0.999
  - Loss: binary cross entropy
  - GTX 1080TI
  - 55s/epoch
  - **10** epochs
  - over-fit after 4 epochs
  - Accuracy: 85%



Training Alexnet from scractch on Alexnet

- **20** more epochs
  - Accuracy
    - 83%



Next step

- Visualize the learned features to figure out how does the network learn.
- Other optimizer: RMSProp, Adadelta, learning rate
- Other ideas?