Leukemia Classification:

Identify cancer cells in the most prevalent childhood cancer type.

kaggle competition: https://www.kaggle.com/andrewmvd/leukemia-classification

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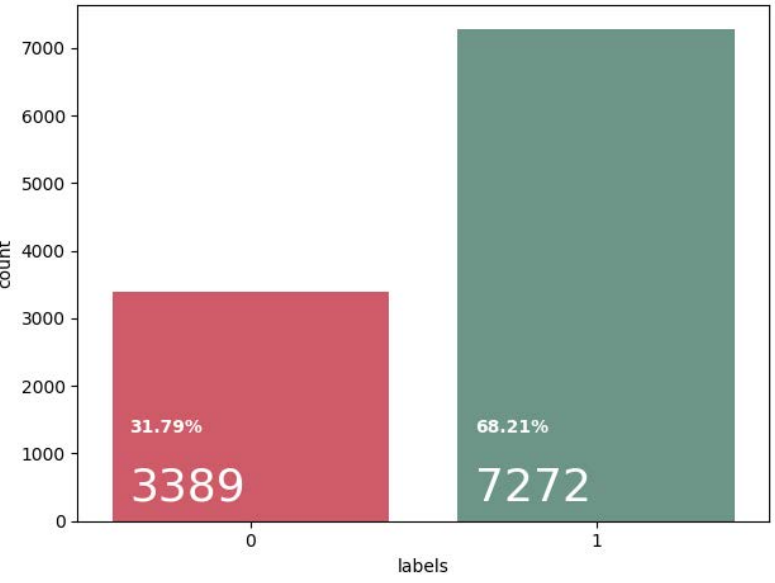
Dataset

C_NMC_2019 Dataset: ALL Challenge dataset of ISBI 2019

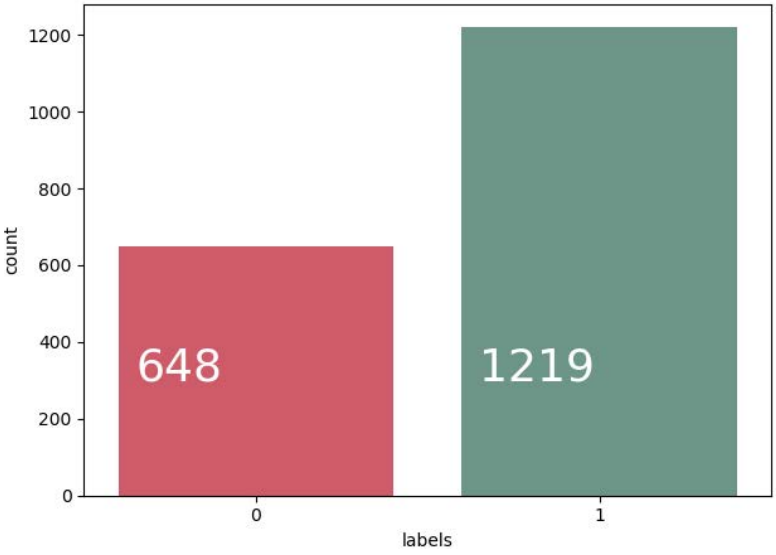
https://wiki.cancerimagingarchive.net/display/Public/C_NMC_2019+Dataset%3A+ALL+Challenge+dataset+of+ISBI+2019

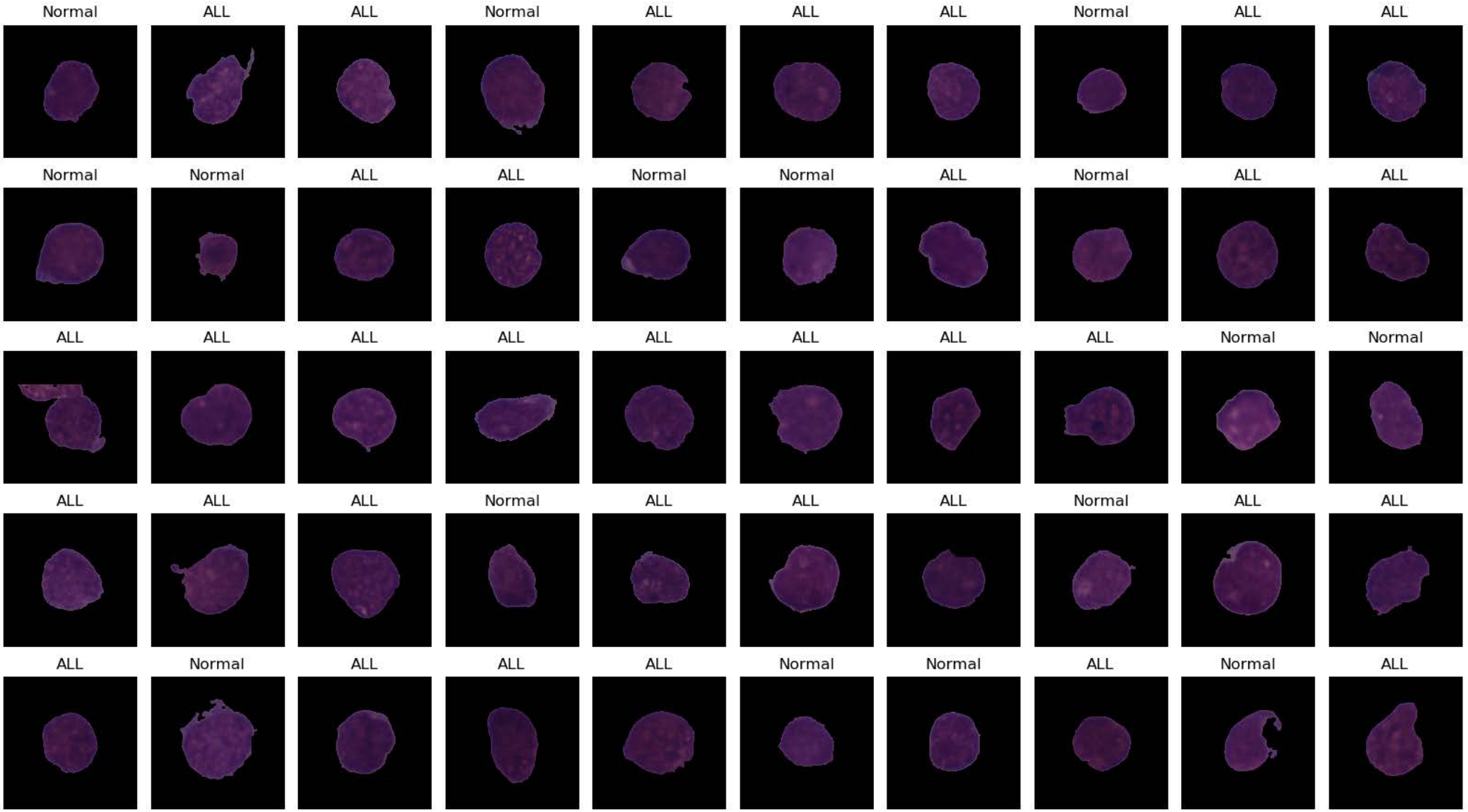
0 - healthy
1 - ALL

Train



Test

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CNN structure

```
(conv1): Conv2d(3, 12, kernel_size=(3, 3), stride=(1, 1))
(norm1): BatchNorm2d(12, eps=1e-05, momentum=0.1, affine=True,
(conv1_drop): Dropout2d(p=0.2, inplace=False)
(conv2): Conv2d(12, 24, kernel_size=(3, 3), stride=(1, 1))
(norm2): BatchNorm2d(24, eps=1e-05, momentum=0.1, affine=True,
(conv2_drop): Dropout2d(p=0.2, inplace=False)
(conv3): Conv2d(24, 48, kernel_size=(3, 3), stride=(1, 1))
(norm3): BatchNorm2d(48, eps=1e-05, momentum=0.1, affine=True,
(conv3_drop): Dropout2d(p=0.2, inplace=False)
(dense_drop): Dropout(p=0.2, inplace=False)
(fc1): Linear(in_features=13872, out_features=1024, bias=True)
(fc2): Linear(in_features=1024, out_features=512, bias=True)
(fc3): Linear(in_features=512, out_features=2, bias=True)
```

Train/inference

Batch size = 100

Image size 450x450 --> 150x150

Train/valid = 2/1

100 epochs

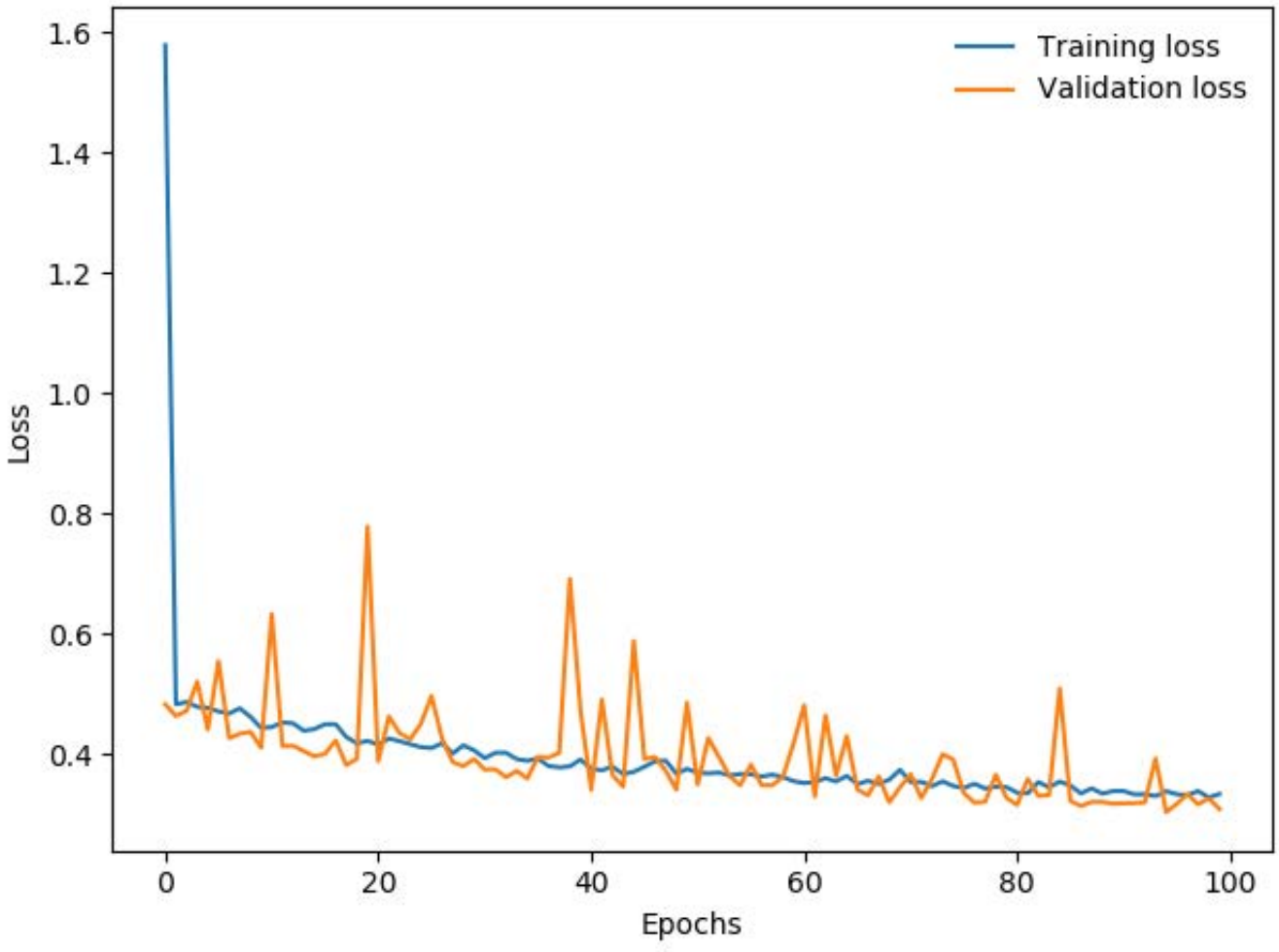
Device: GPU (RTX 2060)

Metric: accuracy

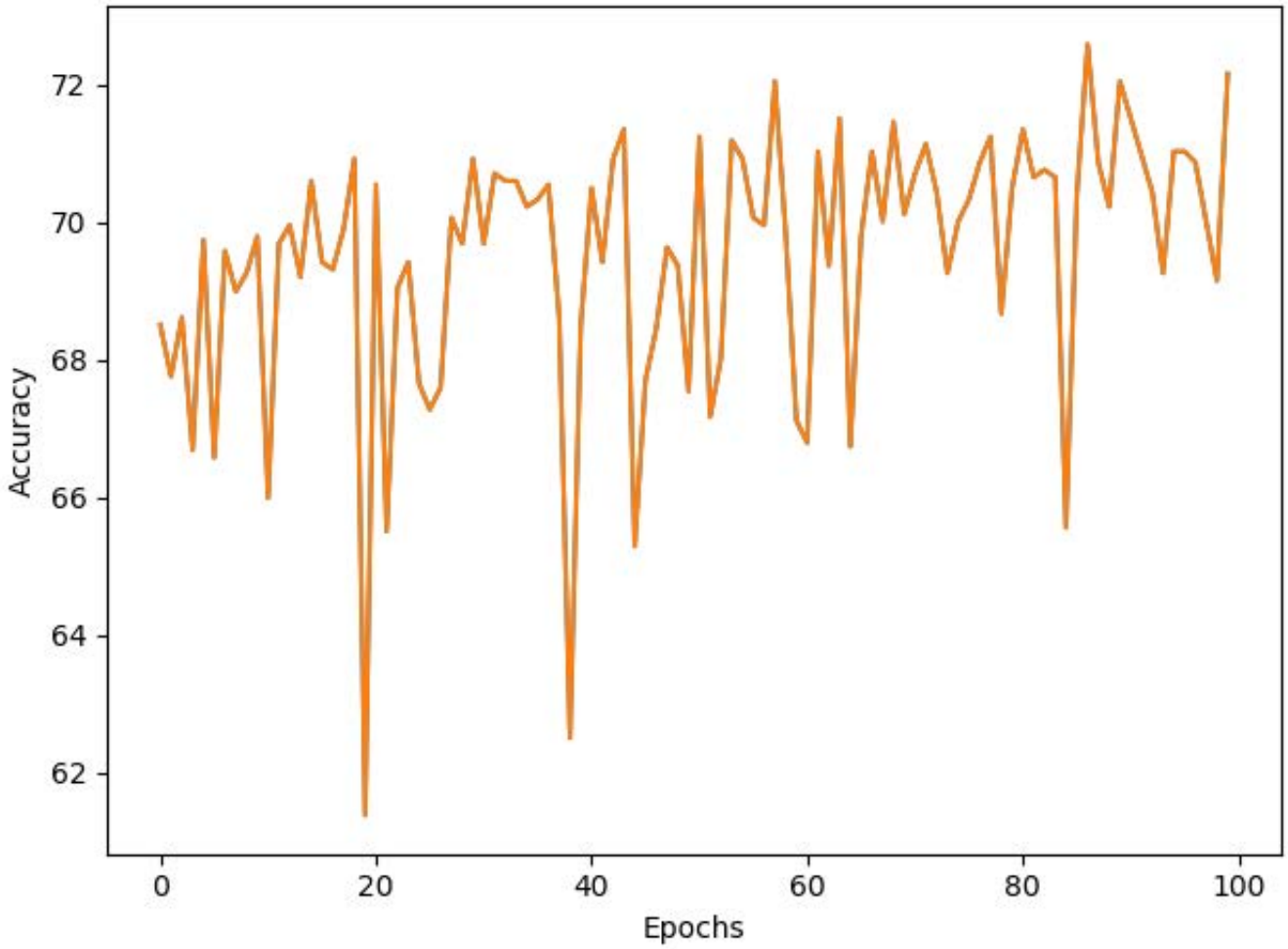
Learning rate = 0.003

criterion: Cross Entropy

Optimizer: Adam



Test



Valid accuracy: 84.9%

Test accuracy: 72.1%