Presentation

CERFACS challenge

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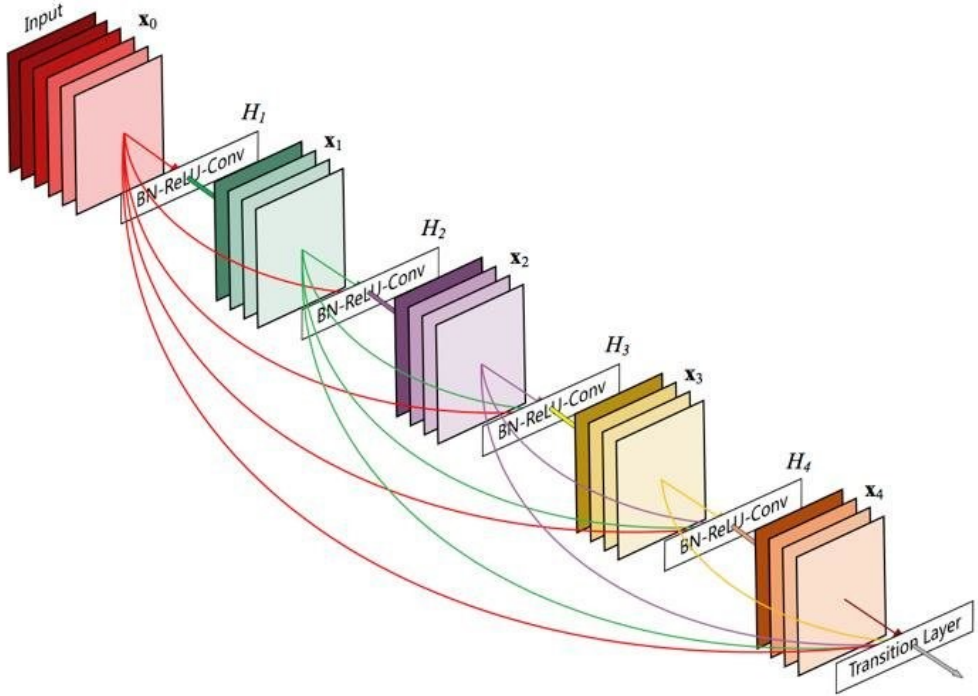
Table of contents

Feature engineering

- Tools
  - Python 3.6
  - Keras
- Data augmentation
  - Horizontal flip
  - Vertical flip
  - **No zoom, shifting, …etc.**

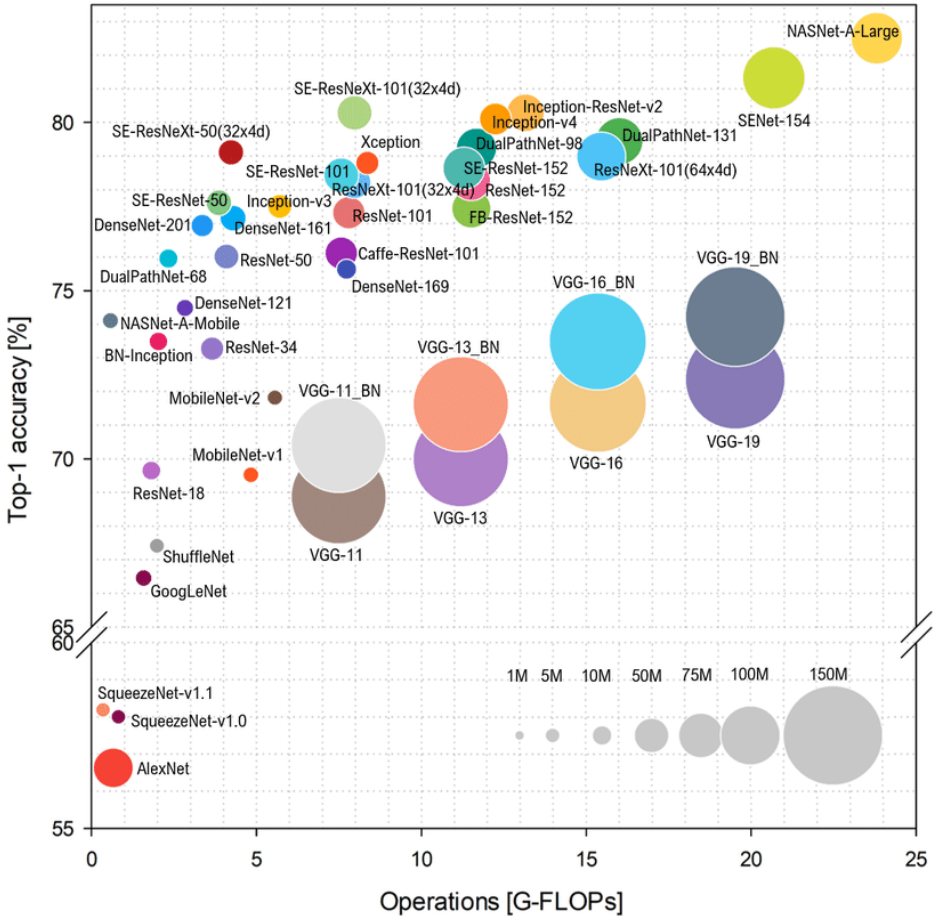
Model (Part 1/2)

- **Try two networks**
  - DenseNet 169
  - DenseNet 201
    - Better…
- **DenseNet**
  - Often used in competition
    - Classification
  - Good performance
    - Less computing



Source: "Densely Connected Convolutional Network", Gao Huang & Zhuang Liu et al, 2016. https://arxiv.org/pdf/1608.06993.pdf

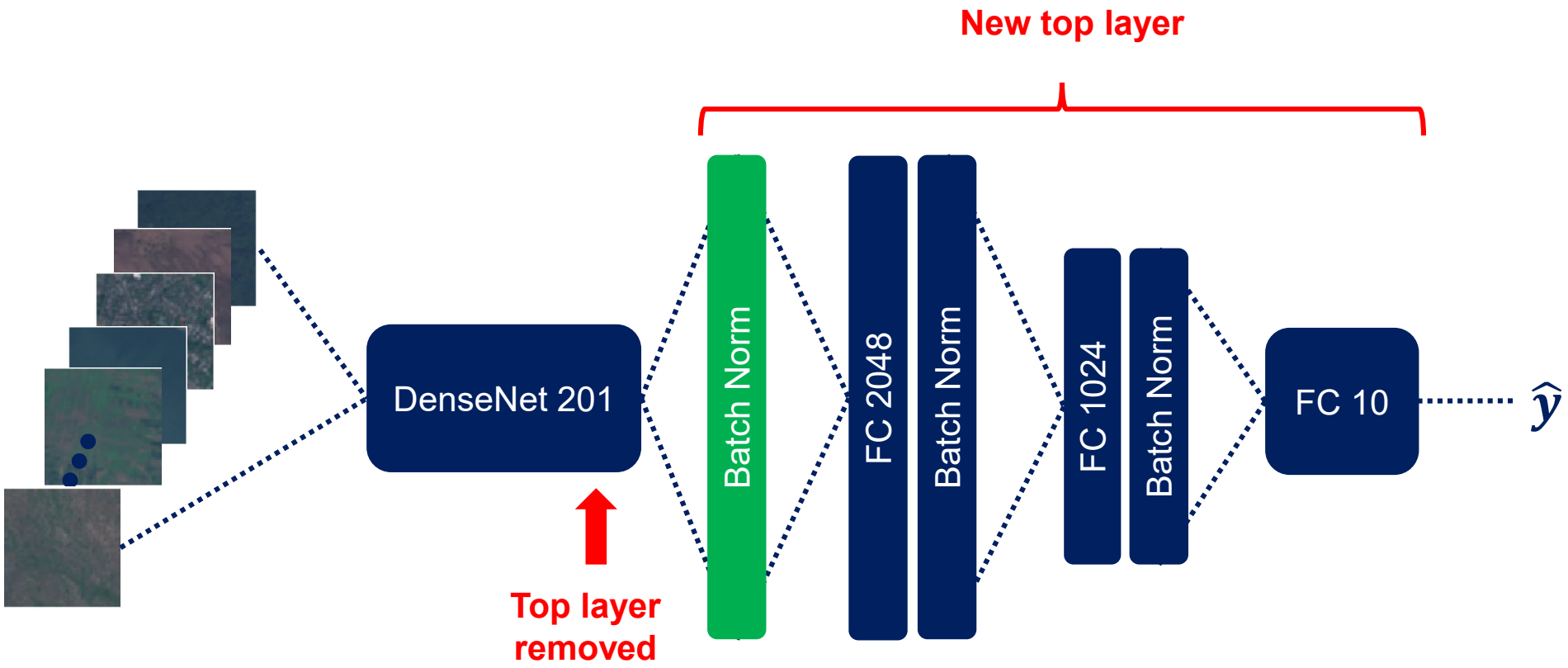
Model (Part 2/2)



Source: "Benchmark Analysis of Representative Deep Neural Network Architectures", Simone Bianco et al, 2018. https://arxiv.org/pdf/1810.00736.pdf

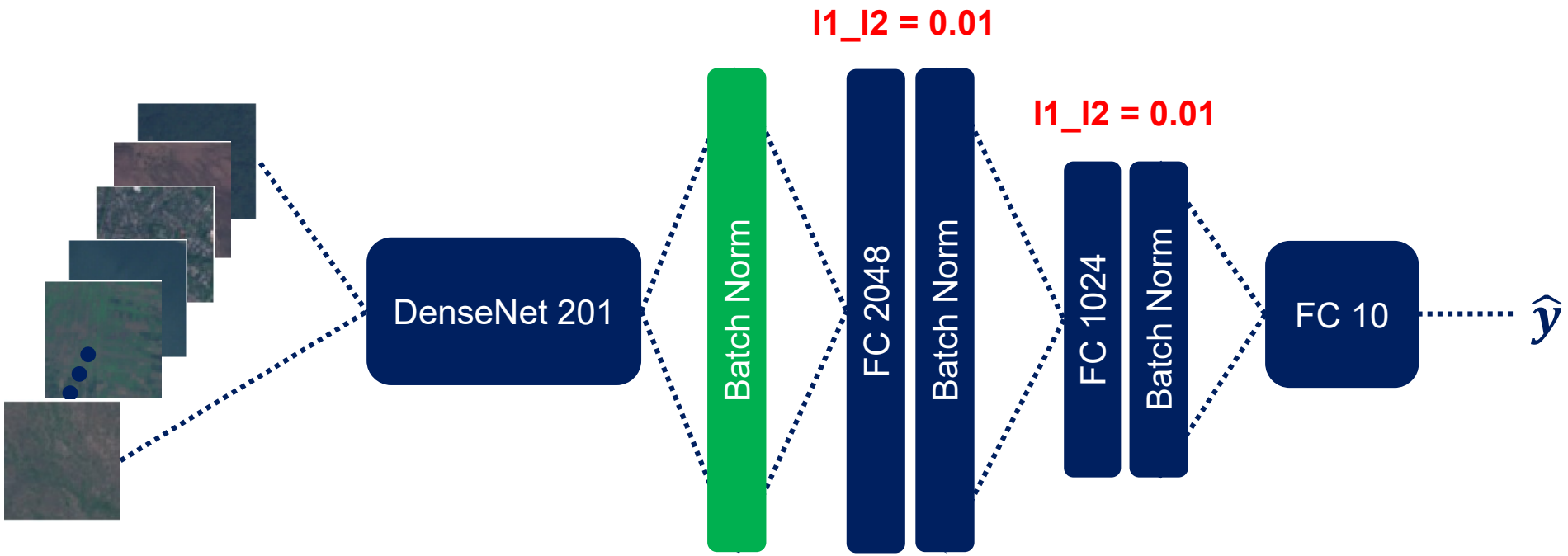
Architecture

Step 0



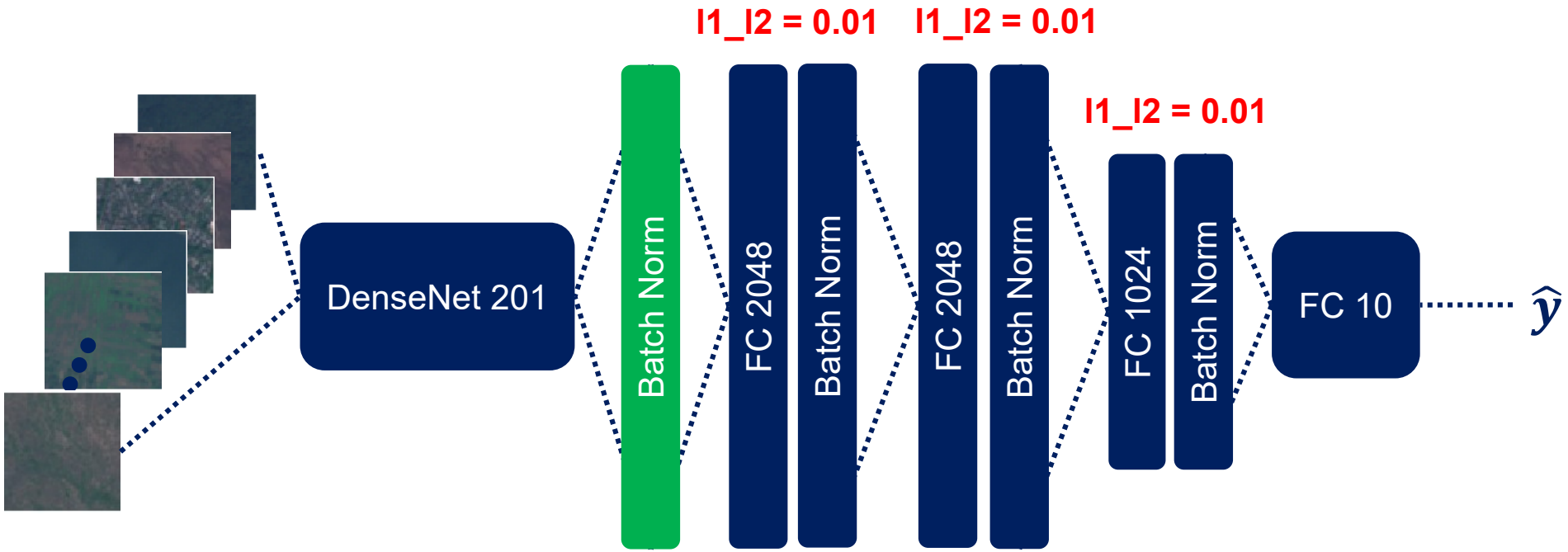
Architecture

Step 1



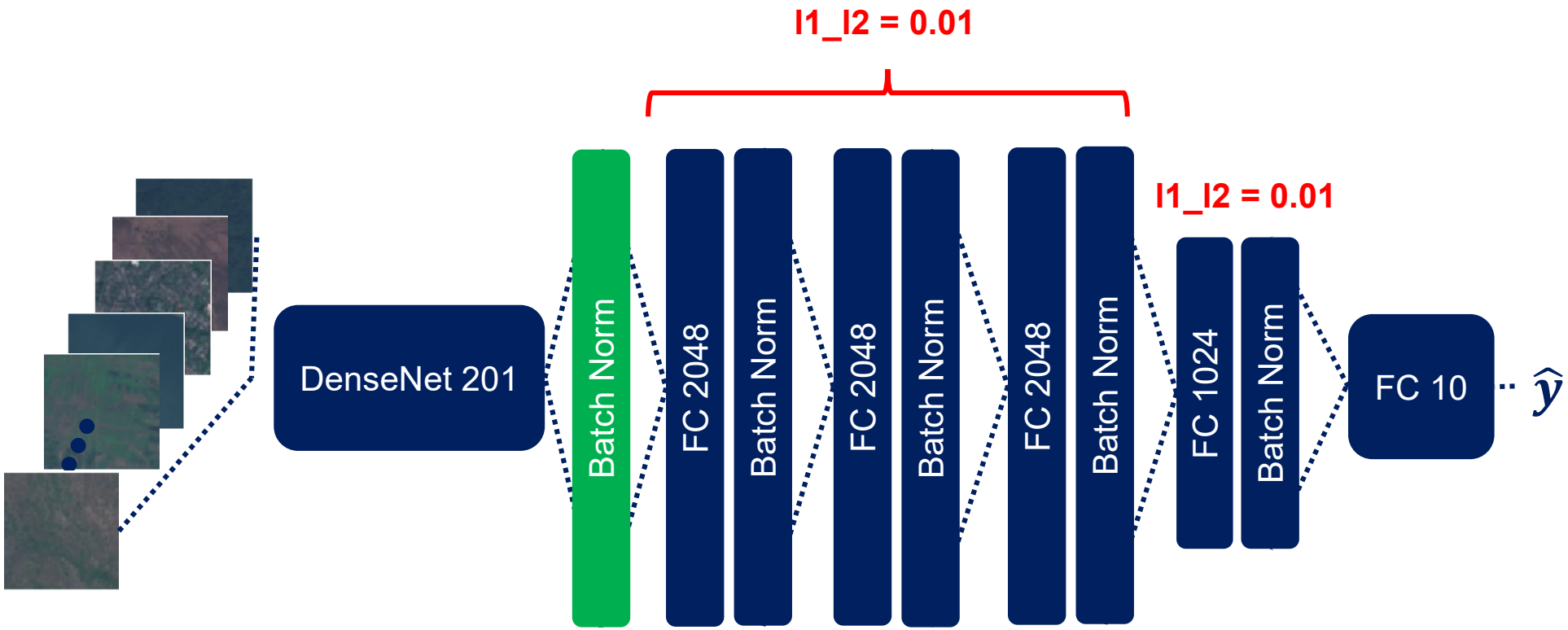
Architecture

Step 2



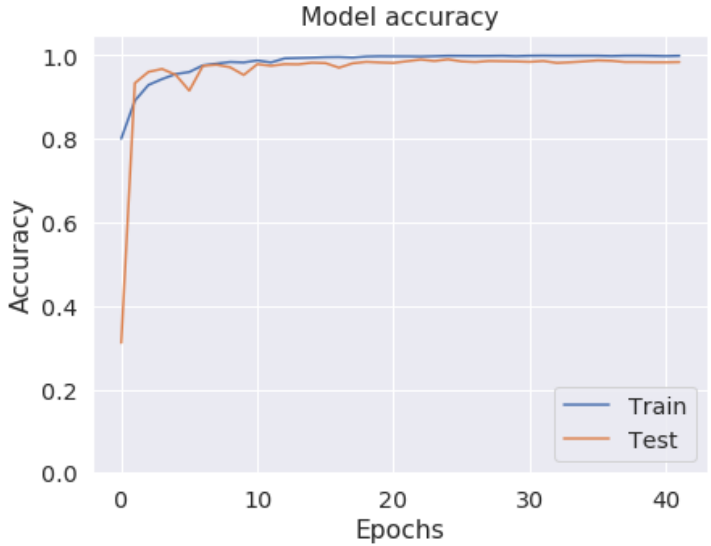
Architecture

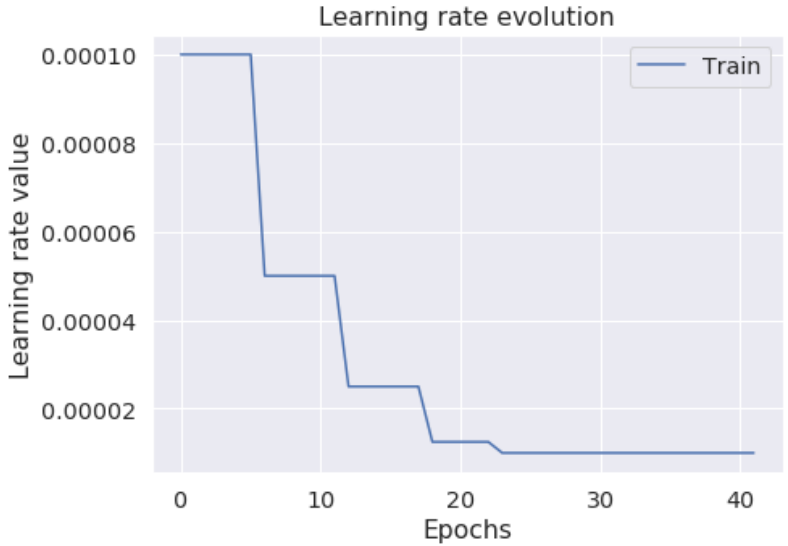
Step 3



Results

- **Public Leaderboard : 0. 98686**
- **Private Leaderboard : 0.98714 ▲**





Source: "Landcover classification Keras DenseNet201", Fabien Meslet-Millet, 2019.
https://www.kaggle.com/grecs2001/landcover-classification-keras-densenet201

Conclusion

- **Try others architectures**
  - ResNeXt
  - DenseNet 269
    - **Not implemented in Keras**
  - …etc
- **Network Architecture Search (NAS)**
  - Better than every architecture (on ImageNet dataset)
  - Computationally expensive (cf. slide 5)
- **See more :**
  - Kaggle : https://www.kaggle.com/grecs2001/landcover-classification-keras-densenet201
  - GitHub : https://github.com/fmeslet/Codalab/tree/master/CERFACS

Thanks for your attention !

Any questions ?

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