**YCBS 273 - Introduction to Practical Machine Learning.**

**YCBS 258 - Practical Machine Learning.**

**YCNG 229 - Neural Networks and Deep Learning.**

McGill University School of Continuing Studies

2022

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# **Weekly Note - Links**

*All notes are subject to be changed / modified without prior notice.*

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To do weekly note (Maximum one page, informative and short sentences and list items preferably):

***Class has two option(s):***

1- A summary of your understanding from course ( referring to class and module presentation file )

2- Follow each week recommendation (as below)

Note:

- Technical report could be written either in English or French (en français )

- Use your own words !

- Citation and references should be listed

- Evaluation process doesn’t focus on your English or French proficiency while technical details should be delivered.

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***Week Recommendation :***

Week 1 :

It was orientation session we do not have any weekly note

Week 2 : Introduction to Deep Learning and Keras ( Session 2 - Module 01 )

- Difference between Statistical Machine Learning and Deep Learning solutions in practice ! ( Your own words )

- What is Softmax ( a bit search about algorithms ) and usage !

- Regularization in Deep Learning - Overfitting Solution !!! (L1-L2- Dropout - Data augmentation)

Week 3 : Hyperparameters and Performance (Session 03 - Module 02)

- Explore Hyper-parameter Optimization (check these Four Python libraries)

* KerasTuner
* Skoptimize
* Hyperopt
* Optuna

Week 4 : Convolutional Neural Networks (Session 04 - Module 03)

- Explore " Siamese Neural Network"

Some link but not limited to :

<https://towardsdatascience.com/a-friendly-introduction-to-siamese-networks-85ab17522942>

Week 5: Recurrent Neural Networks and Time Series (Session 05 - Module 04)

- Explore "Prophet"

Some link but not limited to

<https://machinelearningmastery.com/time-series-forecasting-with-prophet-in-python/>

Week 6: Auto-encoders and GANs (Session 06 - Module 05)

- Difference between Kernel and Activity regularizers (common used in AutoEncoder)

Such as : <https://stackoverflow.com/questions/44495698/keras-difference-between-kernel-and-activity-regularizers>

- Generate realistic pictures with Deep Convolutional GANs

such as : <https://medium.com/dc-gan/how-to-generate-realistic-pictures-with-deep-convolutional-gans-328beb40c14>

Week 7 : Natural Language Processing (Session 07 - Module 06)

- Transformers in NLP: A beginner friendly explanation

<https://towardsdatascience.com/transformers-89034557de14>

- BERT in details :

<https://towardsdatascience.com/understanding-bert-is-it-a-game-changer-in-nlp-7cca943cf3ad>

Week 8 : Reinforcement Learning (Session 08 - Module 07)

- Introduction to RL :

<https://towardsdatascience.com/drl-01-a-gentle-introduction-to-deep-reinforcement-learning-405b79866bf4>

Week 9 : Deploying Keras Models (Session 09 - Module 08)

- FastAPI:

<https://towardsdatascience.com/implementing-fastapi-in-10-minutes-d161cdd7c075>

- Deploy a machine Learning model with FLASK

<https://towardsdatascience.com/how-to-easily-deploy-machine-learning-models-using-flask-b95af8fe34d4>

- Save machine learning model in sklearn : Pickle Modelling

<https://medium.com/@pemagrg/saving-sklearn-model-to-pickle-595da291ec1c>

- Introduction to TF Serving :

<https://www.iguazio.com/blog/introduction-to-tf-serving/>

Week 10 : Structuring ML Projects (Session 10 - Module 09)

- What-If Tool (WIT)

<https://pair-code.github.io/what-if-tool/>

<https://colab.research.google.com/github/pair-code/what-if-tool/blob/master/keras_sklearn_compare_caip_e2e.ipynb>

- Explore following functions :

* Glob
* Pandas loc vs. iloc: What’s the Difference?
* seaborn jointplot
* seaborn distplot
* seaborn boxplot
* seaborn violin plot

Week 11 : Review (Session 11 - No Module )

No Weekly Note

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