MOi workshop on Deep Learning

Project session

Projects

Project topics:

- Project #1: Downscaling of sea surface fields
- Project #2: Interpolation of sea surface dynamics
- Project #3: Short-term forecasting of sea surface dynamics
- Project #4: Segmentation of mesoscale eddies from satellite-derived data

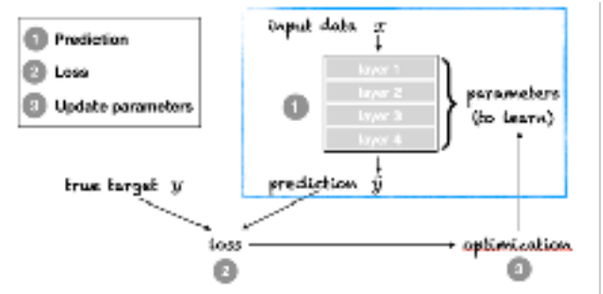
Organisation:

- 2 (independent) groups per project

Available datasets :

- Project #1,2,3: NATL60 OSSE (SLA, SST, SSC, altimetry + gap-free SST)
- Project #4: Specific dataset
  https://github.com/CIA-Oceanix/DLCourse_MOi_2022/blob/main/projects/

Guidelines to implement Deep Learning schemes



1. Problem formulation (inputs/outputs)
2. Data collection (cf. supervised vs. non-supervised)
3. Definition of performance metrics
4. Selection of neural architectures (at least 2 models)
5. Selection of a training loss
6. Split dataset into training / validation / test datasets
7. Train the selected models from the training dataset and save the best models onto the validation dataset
8. Benchmark the performance of the trained models onto the test dataset
9. Update/iterate 4-5-6-7-8

Project Session #1

- Problem formulation
  - Which inputs/ouputs ?
  - Which datasets?
  - Performance metrics ?
- Review of available dataset
- Searching for related reference/code on the web
- 3-slide presentation of the project :
  - What ? (Inputs/outputs)
  - Dataset
  - Performance metrics / loss ?
- 15’ Wrap-up with the 2 groups for each project topic