APPRENTISSAGE AUTOMATIQUE

MACHINE LEARNING

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| Lecturers : 0.0 | TC : 0.0 | PW : 0.0 | Autonomy : 0.0 | Study : 0.0 | Project : 0.0 | Language : FR

Objectives

Deep learning has revolutionized an increasing number of domains, e.g., computer vision, natural language processing, games, etc. Structured learning is machine learning which aims to output data, e.g., sequences, matrix, graphs, which have components under some dependencies, e.g., words in a sentence. In this course, we aim to introduce fundamental concepts, theories and advanced techniques in deep structured learning, covering in particular sequence to sequence learning and Generative Adversarial Network (GAN). A number of practical works will be scheduled, including for instance image generation, image to text generation, text-to-image generation, style transfer, etc.

Keywords : Structured learning, recursive networks, LSTM, Attention-based models, Transformer, Bert, GAN

Programme

Sequence to sequence learning
- Recursive Network, LSTM, GRU
- Attention-based Model
- Transformer
- Language models, ELMO, BERT, GPT

Generative Adversarial Network (GAN)
- Basics
- Conditional GAN

Learning outcomes

- Understand the basic principles of deep structured learning
- Know how to implement state of the art techniques and methods, e.g., LSTM, Transformer, and GANs, for practical structured learning problems
- know how to evaluate the quality of an implemented deep structured learning method

Independent study

Objectifs :

Méhodes :

Core texts

C. M. Bishop. , *PATTERN RECOGNITION AND MACHINE LEARNING.* , Springer., 2006
Goodfellow, Y. Bengio, and A. Courvill e. *DEEP LEARNING.* , MIT Pres., 2016

Assessment

Final exam and scores of BE